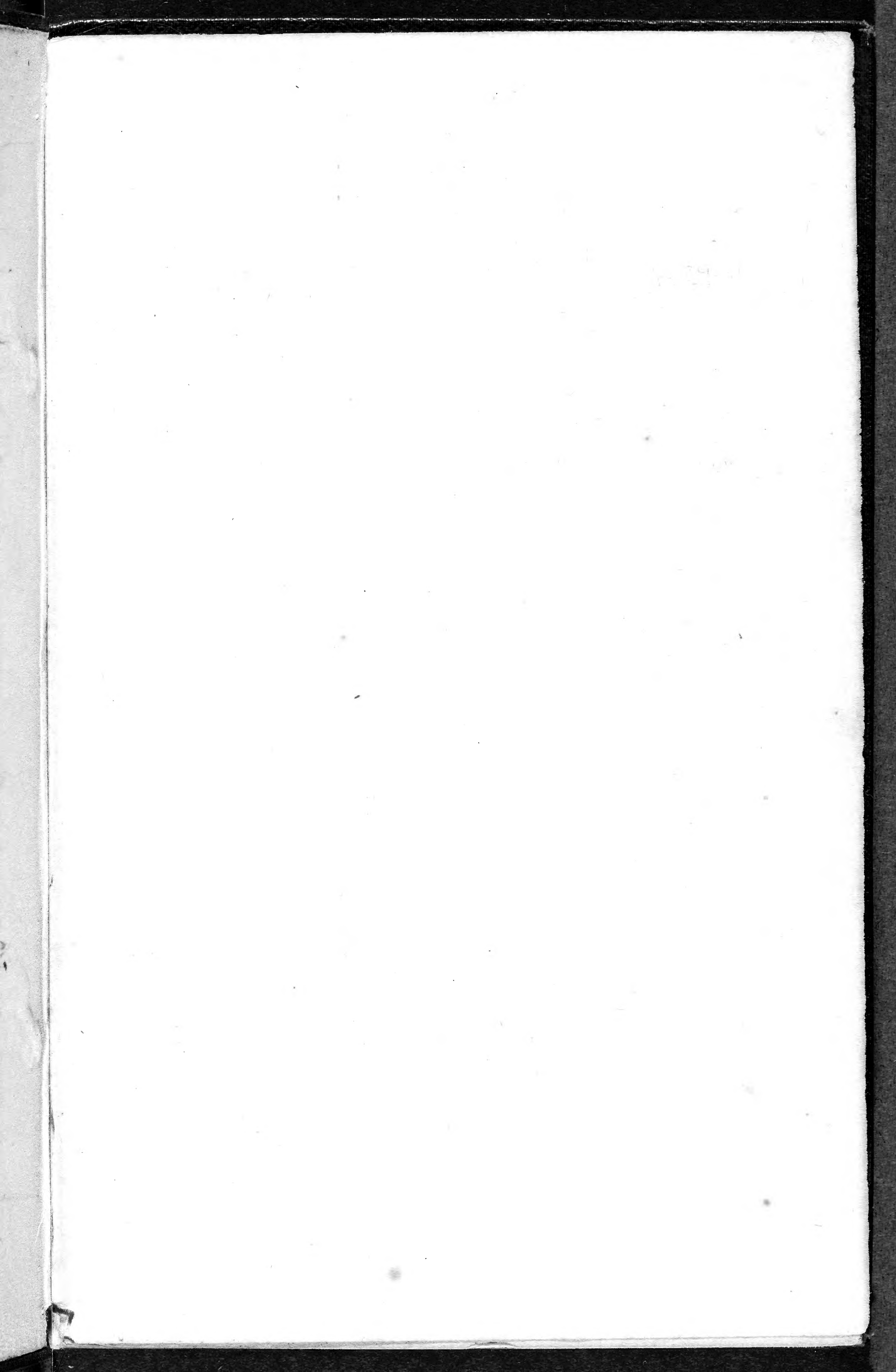
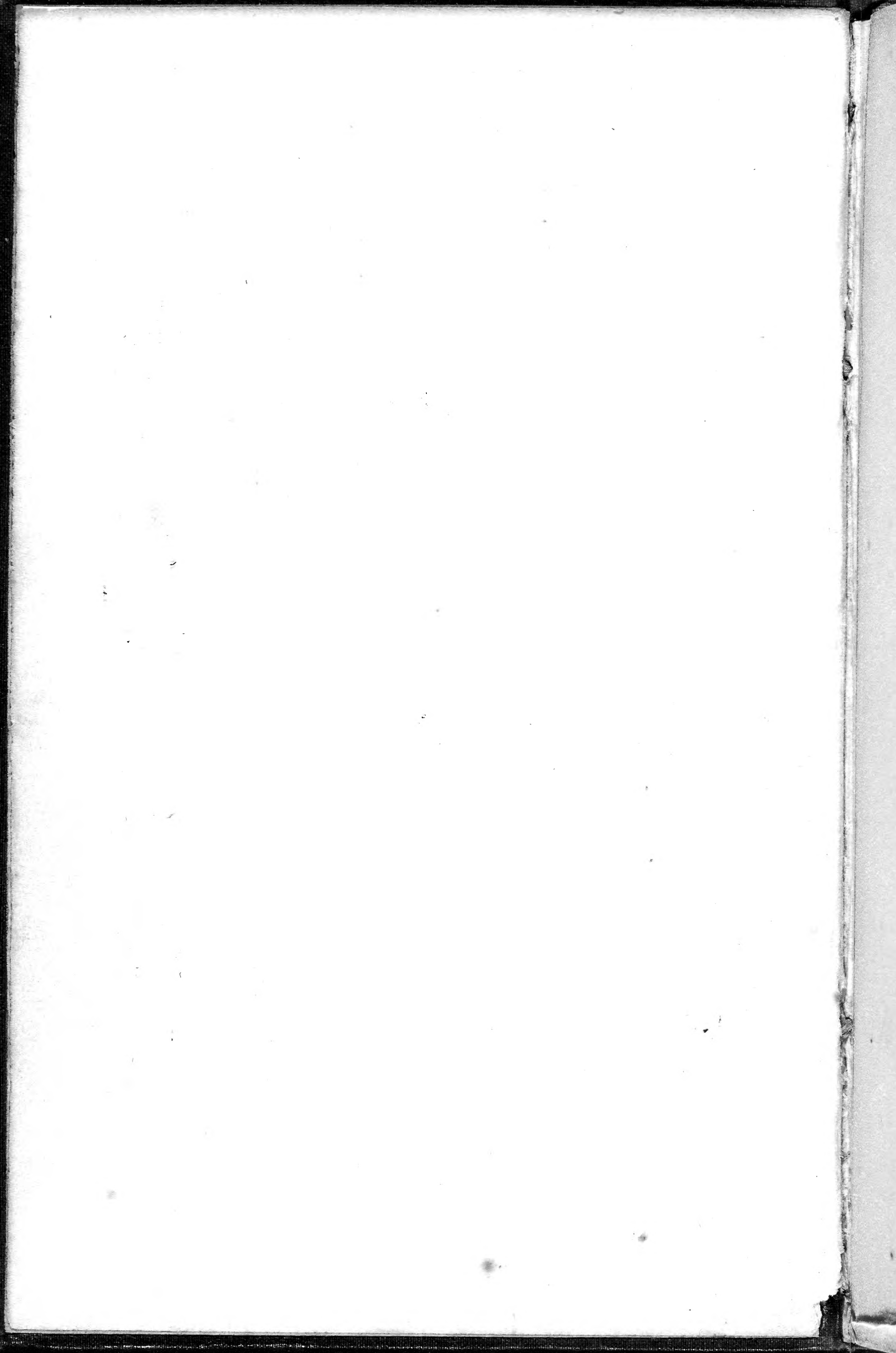
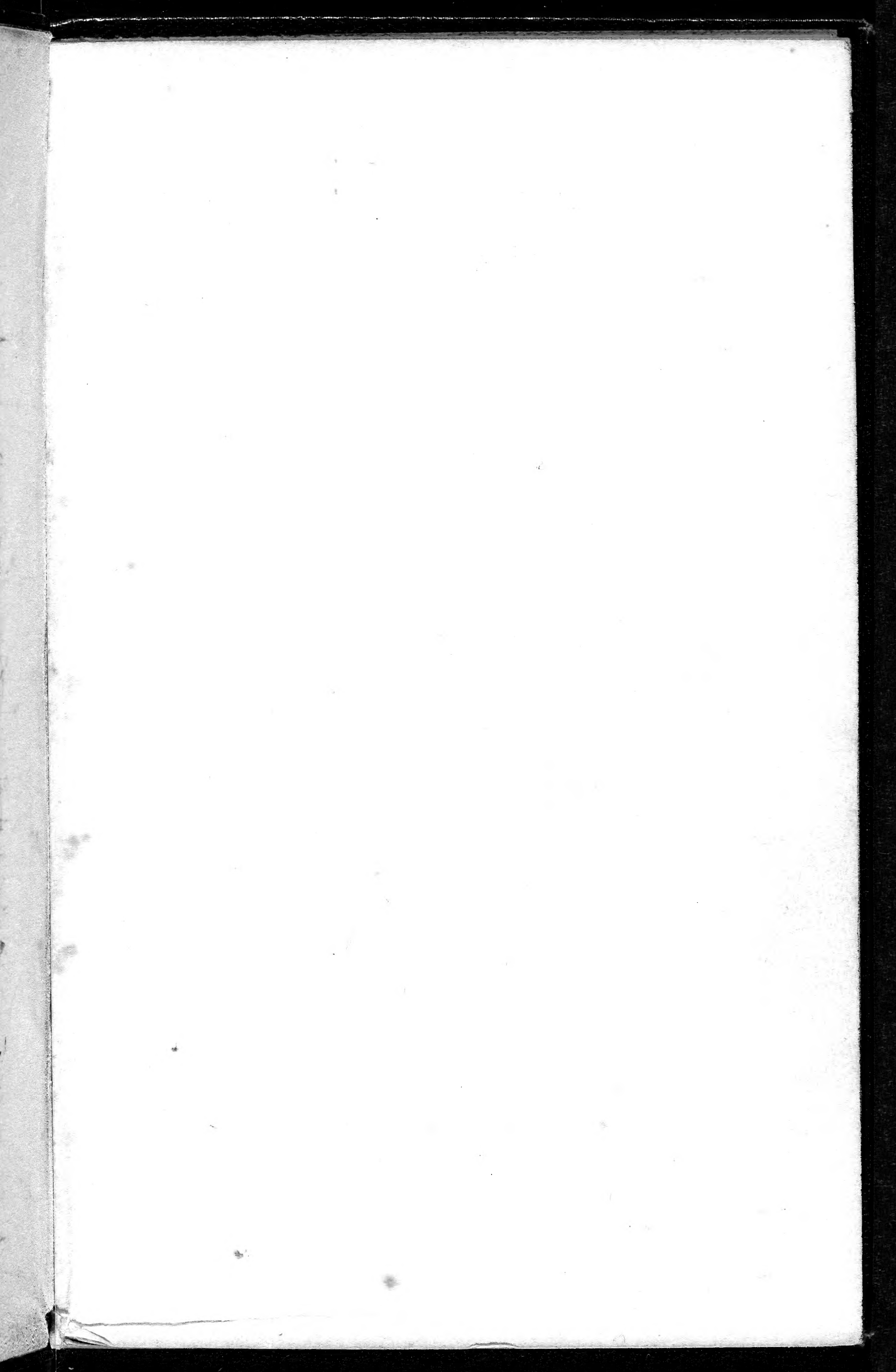


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THE
SCOTCH
FORCING GARDENER,

COMPRISING THE VARIOUS METHODS

OF FORCING GRAPES, PEACHES, NECTARINES,
PINE-APPLES, FIGS, CUCUMBERS, MELONS, STRAWBERRIES,
FRENCH BEANS, CRESSES, AND MUSTARD.

TO WHICH IS ADDED,

A LIST OF FRUITS WORTHY OF CULTIVATION.

BY JAMES GRAHAM TEMPLE,
PRACTICAL GARDENER.

EDINBURGH:
PRINTED FOR THE AUTHOR,
AND SOLD BY
JAMES WHITEHEAD, BOOKSELLER, KINROSS.

1828.

EDINBURGH:
PRINTED BY JAMES CLARKE & CO.

TO
GARDENERS,

THIS LITTLE VOLUME

IS MOST HUMBLY AND RESPECTFULLY

DEDICATED

BY

THE AUTHOR.

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PREFACE.

THE following Treatise has been written at the solicitation of several Gentlemen who have devoted much of their time to the practical part of Gardening.

Although the Author is aware, that to an experienced Gardener little or nothing new will be acquired from perusing the following short directions, yet he flatters himself, that to many Country Gentlemen, who of late years have bestowed much attention to this useful occupation, and more particularly to the young and inexperienced Gardener, this little Work will be found acceptable.

The Author has confined his observations chiefly to the forcing of fruits natives of foreign countries, in the cultivation of which he has had much experience ; and his rules for forcing, he has no doubt, when put in practice, and strictly adhered to, will be found very effectual.

At the same time, when stating the result of his own experience, he is aware that much diversity of opinion on this subject exists amongst experienced Gardeners; nevertheless, he conceives that this little Work will be found to afford as correct practical instructions regarding the subjects of which it treats as any of the few works of the same magnitude that have preceded it.

KINROSS, *Nov.* 1828.

OBSERVATIONS
most suitable
I.—For Grapes
II.—Peaches
III.—Cherries
IV.—Figs
V.—Pines
VI.—Strawberries
VII.—Currants
VIII.—Melons
IX.—Oranges

Of Planting
Of Forcing
Of Planting
Of Forcing
Of Forcing
Of Forcing
Of Planting
Of Forcing
Of Forcing
Of Forcing
Of Forcing
The Pinery
Of the Nursery

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THE
SCOTCH
FORCING GARDENER.

Observations on the Kinds of Soil which have been found most suitable to be made use of in FORCING HOUSES.

IN this department of Gardening, compositions of very various kinds have been used ; some of which, as might have been expected, have given much more satisfaction than others. It is not to be doubted that these results are to be ascribed to the different degrees of experience which practical writers have been possessed of. But though it is true that a considerable share of practice is indispensably necessary towards obtaining correct notions on this subject, yet it has generally been observed that the most important discoveries in the art have been owing to those whose experience was not extensive, but in whom the possession of ingenuity supplied its place.

In Scotland, on account of the variableness of the climate, it is undoubtedly no easy matter to perform the various operations of forcing, with that degree of judgment which is required. But while this is a disadvantage in some respects, it is yet of vast importance towards acquiring a thorough and well-grounded knowledge of the subject. When the Practical Gardener has difficulties of this kind to contend with, it obliges him to fall upon many shifts and expedients which in more favourable climates are not needed, or at least very imperfectly sought after. As far as I have had occasion myself to be concerned in forcing, or have seen it practised in the most extensive establishments throughout Scotland and England, by those whose judgment might be depended upon, I believe I may venture to say, that the following compositions will be found to answer fully as well as any which have hitherto been made use of.

I.—FOR GRAPES.

The first thing which ought to be attended to is the foundation, or subsoil; which, if not naturally dry, must be well drained, and paved at bottom, to prevent the roots from entering the bad soil. The border should never be less than three feet deep, if it is wished the vines should grow vigorously for a great length of years. It must be at

least 36 feet in breadth when first formed ; *i. e.* taking the outside and inside of the house together. But the breadth outside will require to be enlarged afterwards ; the proper time for which must be judged of according to the state of the roots, which, when necessary to be done, will have reached as far as the breadth of the border extends.

The soil should be thus composed : Three-fourths strong hazelly loam, formed from the sward of a pasture thoroughly decomposed, which pasture should have lain in grass for some years ; one-fourth vegetable mould of decayed tree leaves ; about one-sixth of both the above good rotten horse or cow dung ; to which may be added about an eighth part of marl, if it can be obtained good ; but otherwise, the composition will be better without it. These materials should be wrought and exposed to the action of the weather, until the whole becomes completely incorporated, and forms a solid mass.

II.—PEACHES AND NECTARINES.

The bottom, if it stands in need of it, must be made comfortably dry, as above directed. The border should be three feet deep at least, and in breadth, the width of the house, with 12 feet more outside. Soil the same as above, unless used for

plants forced in pots or tubs, which, on account of the roots being confined within a small compass, require the soil to be richer. If, therefore, a quantity of bone dust or sheep dung, well reduced, were intermixed with the soil when it is used for this purpose, it will be found to have a good effect in swelling off the fruit to advantage.

III.—CHERRIES.

The bottom, if not naturally dry, must be drained and floored as above directed. The border should be three feet in depth. With respect to the soil, it may be observed, that when cherries are forced in soil which is too rich, they grow too much to wood, and do not fruit well ; hence the soil for such should be considerably lighter. The border may therefore be either entirely formed of loam produced from the sward of a pasture of middling quality, or a moderate quantity of vegetable mould may be intermixed with it to keep it free ; but dung, lime, or marl, though recommended by some, should never on any account be made use of.

Those in pots or tubs require the soil to be somewhat richer, on account of the roots being confined, as before observed. A little bone dust may therefore be intermixed with it, or a moderate quantity of sheep dung, thoroughly decomposed, which will answer fully as well.

IV.—FIGS.

The bottom is to be made comfortable, if it be necessary. Figs being commonly planted on back trellises, and seldom in houses formed for the purpose, will thrive sufficiently well in soil of a middling quality. But if it be wished that the tree should grow to a great size, and produce much fruit, they will require a soil fully as rich as that which is used for Vines, or for Nectarines and Peaches. Plants forced in pots or tubs should have a soil of this quality also.

V.—PINES.

With respect to the soil most suitable for Pines, very much contradiction and absurdity have been advanced. Indeed it would appear, from the statement of some writers on this subject, that there is scarcely any other way of growing pines but in compositions, formed from a variety of moulds, intermixed with marl, gravel, and other heterogeneous materials.

Now it is a maxim among the best pine growers, that the more simple any composition is for this purpose it is the better, providing only the materials be of quality corresponding with the nature of the plant.

The following is the soil I have myself always used with good success, and which, I may observe, is the composition that is universally adopted by the most skilful in the profession, both in Scotland and England, with whom I am acquainted:—

Take the sward of an old pasture on which sheep have been folded for a considerable length of time, and be careful that it be of a superior quality; which may be known by the soil being of a hazelly colour and clammy, yet not so much so that, if compressed in the hand, it will not easily break afterwards, but free enough, on being let fall, or pressed with the finger, to fall in pieces; that is, supposing the soil to be moderately moist. If, however, a sward from a fold cannot be obtained, one taken from the sward of an old pasture of this quality will answer nearly the same purpose, providing it is mixed with about one-fourth part sheep dung. Let the sward and sheep dung thus mixed be laid up into a ridge about four feet high, and repeatedly cut and turned (particularly during frosty weather) until it becomes completely decomposed, and is fit for being used, which will not be sooner than two years. Such is the soil most suitable for fruiting and succession plants; but the soil in which to strike crowns and suckers ought to be considerably lighter, and may be composed one half loam of the above quality, intermixed with about an equal quantity of vegetable mould of decayed tree leaves, observing

to prefer those of the oak and beech on account of their being least resinous.

VI.—STRAWBERRIES.

Strong loam produced from the sward of a pasture, and kept free by being well incorporated with good rotten dung, is a very fit soil for strawberries forced in pots. The material should be well wrought, and exposed to the weather for at least twelve months before being used.

VII.—CUCUMBERS.

Loam of a middling texture, produced from the sward of a pasture, and intermixed with about one-fourth part vegetable mould of decayed tree leaves, forms an excellent soil for cucumbers. A quantity of dung is sometimes added; but this is improper, as it causes the plants to grow too luxuriously, and in a great measure prevents them from fruiting well.

VIII.—MELONS.

Melons do not fruit well, unless in soil of very superior quality. Strong loam should therefore be used, which, if possible, should be procured from the sward of a pasture that has lain long in grass.

This, mixed with about one-fourth part good rotten horse or cow dung, grows melons fully better than any composition which I have hitherto used, and produces fruit in great abundance.

IX.—ORANGES.

Orangeries are seldom to be met with in forcing establishments ; but where the cultivation of them is followed in this way, the following soil is the fittest :—One-half strong brown loam, from the sward of a pasture thoroughly decomposed ; one-third sheep dung, which has lain two years at least, and is well reduced ; a quantity of bone dust, the same ; and a considerable portion of mould produced from branches of hard wood which have lain until they are completely rotten, and capable of being rubbed to dust by the hand.

JANUARY.

OF PLANTING A NEW VINERY.

It is presumed that all things are in readiness, and that the border is composed of such materials as I have recommended. The plants to be used may either be raised in pots from cuttings, or by layers ; but as the former, if they have been pro-

perly managed, are commonly more fully rooted, and are found to grow freer than the latter, they ought to be preferred. In growing young plants, care should be taken to have the cuttings from vigorous and healthy vines, and that the young shoots made use of for this purpose be matured and well ripened. In the course of two years, with due attention, they will be ready for being transplanted into the vinery; during which period they ought to have been regularly shifted from pots of a less to a larger size, and trained only with one shoot. They should have been cut over twice; the first year to within four or five eyes of the bottom, and the following year to within five or six eyes of the preceding year's growth, that is, if the shoot be well ripened and healthy.

In planting, if the vinery be properly constructed, a vine for each light will be sufficient. They must, of course, be kept exactly in the centre, and a few inches clear of the parapet in front, (inside.) They are to be trained to wire railing, running from one end of the house to the other. Before planting, let the border between the parapet and front flue be dug over and levelled; after which, dig out the pits, and keep them considerably larger than the balls of earth in which the vines are growing, and a few inches deeper than it is necessary that the vine should be planted. Lay a quantity of vegetable mould of decayed tree leaves, inter-

mixed with fine loam, all over the surface of the pit at bottom; observing to allow still as much depth as that, when the vine is planted, the upper surface of the ball be an inch or so lower than the level of the border. Be careful, in turning the plants out of the pots, to keep the balls as entire as possible; and in preparing them afterwards, previous to being planted, let them be considerably reduced, taking care, whilst doing so, to damage the roots as little as possible. If the roots be matted or too numerous, let such as are the least promising be taken away. In planting, observe to spread out the roots neatly and carefully; and if there is any part of the ball in which the roots are more vigorous than others, let such part be placed on the side next the parapet; it being always found that, in forcing, the heat of the flue inclines the roots towards it, and prevents them from pushing so vigorously outside. In bedding the roots, let the compost be filled in by little at a time; taking care to work it in well about them with the hand, and leaving no vacancies. What part of the border has been trode upon should be stirred up, and the whole neatly levelled. Give the plants no water at this period, for although this has been recommended by some, it is very improper. A much better method is to lay a quantity of good rotten dung all over the border, keeping it a few inches clear of the vines, which will keep the earth suffi-

ciently moist about them until the latter end of March or beginning of April, at which time a little water may properly be given; the roots will then be beginning to vegetate.—(*See more on this subject in APRIL.*)

In planting Vines to be trained to back trellises, it is very common to find both early and late kinds used; but, for my part, I do not think this a judicious method; because, being planted at a great distance from the glass, and overshadowed by those in front, the late kinds can never be brought to ripen well, or possess a good flavour.

While treating of this subject, I cannot help taking notice of a method of training vines which has lately been introduced into Scotland. The house is constructed in the ordinary form, so far as it respects the width of the house, elevation, &c.; but instead of the vines being trained to wire up the roof as they ought to be, there are vertical trellises made for this purpose. These trellises are placed immediately underneath the rafters, and do not run parallel to them, but form a kind of arch, resting its two extremities, the one on the back trellis, fully lower than the centre, and the other on the parapet in front. The trellis itself is formed of slight spars of wood attached to the rafters at top, and placed about three inches distant from each other, being cut at such a length as to produce the curve above mentioned.

I need make few remarks on the impropriety of vines being trained in such a situation as this, it being generally acknowledged amongst practical gardeners, that, according to this method, the grapes never can be made to ripen nearly so well, on account of their being placed at such a great distance from the glass, and receiving only a partial benefit from the sun's rays ; the truth of which at once will appear obvious, when it is considered, that it is only when the sun is vertical the rays can possibly strike both sides of the trellis at the same time, and even then but for a short period, thus leaving one-half of the vines shaded during the rest of the day, all which arises from the improper situation of the trellises and their great depth, the insufficiency of which I have had occasion myself to experience, and have often heard it complained of by others.

In a word, without detracting from the merits of any one, it must be allowed, that whoever invented this method has ill understood the right nature of forcing, or that degree of care and attention which, even with every advantage, are necessary to bring this fruit forward to perfection.

Of Forcing Established Plants in the Vinery.

In extensive Forcing Establishments there are commonly two or three grape-houses at least. It

is the practice with most gardeners to commence forcing the earliest of these houses about the 1st of January, though there are those who begin as early as November or December. It would far exceed the limits of this work, and perhaps be of little use, were I to enter into a minute detail of the trifling difference of treatment which one house requires from another, as this must be easily conceived by every one to whom this department of gardening is not in a great measure unknown.

The following observations are therefore to be understood as applying to one compartment; but, in order that they may be more generally useful, I shall endeavour, as far as possible, to reduce them to the form of general rules, connected with the subject in a more enlarged point of view. Before proceeding, however, to give instructions on the more immediate business of forcing, I judge it necessary to take notice of a few things which ought to be done as preparatory to it, more particularly as these things are seldom attended to as they ought to be.

First, then, I would have the flues well swept out, pointed, and put into good repair; for without this they will not work well, nor produce a regular and uniform heat; after this is done, let the back wall be swept or washed down, and afterwards white-washed with quicklime, which renders the house much lighter, and gives it a fresh

and a wholesome smell; and, lastly, let the glass, as well as the wood-work throughout, be thoroughly well cleaned, brushing the latter with a mixture of soap and warm water, (not suds, however, but clean and made for this purpose.)

This is all that is necessary to be done towards putting the house in proper order, which, though it may cost some additional trouble, is of more importance, as it respects the health of the vines, than at first sight may be imagined.

To return to the subject of forcing, I shall suppose the first to be lighted about the beginning of February, which is a good medium season;—that the plants are well established, healthy, and in good order, having been pruned in October, (*which see*,) and exposed to the action of the weather during winter.

About the middle of this month, or rather earlier, let the border between the front flue and parapet be loosened and forked over, taking great care to do so with the necessary degree of caution, and not to go too deep, lest you should injure or disturb the roots. Let the border after this be covered at least nine inches deep with good fresh cow dung, as free of litter as can be got, keeping it three or four inches clear of the vines around the bottom of the stem, and watering it well over the surface, generally speaking, two or three times previous to the fires being lighted. This is perhaps

a better method than that of watering the border with draining from the dunghill, being fully as nourishing, and having the advantage, after the fires are lighted, of preventing the heat of the flues from acting too powerfully upon the roots that lie near to the surface, particularly those which rise more immediately around the bottom of the stem, and which are in general very numerous.

If the house has two flues in front of the path, the interval between them should be lined with dung in the same manner, observing to raise it just as high as the vent of the flues at bottom, that the heat proceeding from them may not thereby be interrupted. This interval should be watered at the same time with the border in front. With respect to the border in front of the back trellis, (including the path,) and that in front of the house outside, both of them should have been manured in October or November, (*which see*;) but if this has not been done, a good quantity of rich cow or horse dung should now be dug into them, taking care, as before observed, not to injure or disturb the roots.

This manuring is a matter of very considerable importance, particularly as it respects the border outside; for in forcing, if the roots are not here kept comfortably warm, and the degree of heat in some measure correspond with that inside the house, the juices will not flow regularly, nor with

sufficient freedom, neither will the vines break so vigorously by a great deal.

The sashes may now be put on, and the vines trained to the trellises, allowing them sufficient space in the ties. The house should be shut up during the night, and in times of rain, snow, &c. during the day ; but at other periods, it should be observed, not to give so much air for some time before the fires are lighted, but to take it away gradually from the time the house is shut up until then, by which the plants become naturalized, as it were, and agree much better with the fire heat. The vines should also now and then be well scourged with the engine, choosing a day which you suppose likely to be fine, (not in the evening, as is commonly done, as this keeps the vines too long damp, and is injurious,) and performing the work in the morning, a short while previous to the sun striking upon the house. Let the water which is used for this purpose be soft, and of the same temperature with the house. This is a practice not generally followed, but it is of considerable importance towards softening the wood of the vines, and swelling the eyes, which, on the fires being lighted, by this means break more freely, and have a better chance of pushing strong and vigorous shoots.

I need only further add, that if the house be infested with mice, as is often the case, every means

should be taken to destroy them. This is an important matter, as these vermin are fond of the young buds, and will eat them off in great numbers if care is not taken to prevent it. I have myself not unfrequently seen all the buds for a considerable height up the vines eaten off in one night.—(*See FEBRUARY for the continuation of this subject.*)

OF PLANTING A NEW PEACH-HOUSE.

It is presumed that all things are in readiness for planting, and that the border has been prepared as formerly directed. The dwarfs most suitable for the front are those which have been trained one year, clean, healthy, and well rooted. It will be proper here to observe, however, that there is some difference of opinion respecting the particular method in which a peach-house ought to be planted,—some supposing that the best method for an early peach-house is to plant in front only, without having any thing on the back wall at all, training the dwarfs up the roof in the manner of vines, and planting riders between them, intending the latter as temporary, and to be removed when the size of the dwarf makes it necessary. Others exactly reverse this order ; and others again plant the dwarfs and riders separately, keeping the former in the front, and the latter in the back part of the house,

(which, when this method is followed, has a back trellis constructed for this purpose,) allowing the dwarfs to grow no higher up the roofs than is proper to prevent the riders from being overshadowed by them.

Either the first or last of these methods may be followed with good success ; but if the house is not very narrow, in my opinion the last method is more elegant than the other, and produces an equal, if not a greater, quantity of fruit. If it should be supposed that this method of planting will not answer so well in an early as in a late peach-house, it may be observed, that there is no material difference betwixt them, inasmuch as any house may be made early or otherwise, according to the time at which the forcing commences, and for any thing that ever I could observe to the contrary, the fruit (being of the early kind) on the back trellis arrives as soon at perfection as the other. I shall, therefore, suppose the house to be planted both in back and front, making choice of trees for both situations which have been only one year trained, and, as before observed, clean, healthy, and as well rooted as possible. I need not here enter into the particulars respecting the method of planting, as this differs nothing from planting fruit-trees in general ; only I may just observe, that the more care with which this work is performed, the plants will thrive the better ; and that to plant

well has generally been acknowledged among skilful gardeners to be half-way towards ultimate success. Respecting the distances at which the trees should be kept from each other, if the house be thirty feet in length or thereabouts, three dwarfs in front, and the same number of riders at back, will be sufficient ; but if the house be from thirty-six to forty feet in length, four of each may be planted. It is to be understood, as before directed, that the dwarfs in front are not to be trained higher up the roof than is proper to prevent the riders at back from being shaded. It is common to plant dwarfs between the riders, that the spaces at bottom may be sooner filled up ; but this is but a confused and inelegant method. It is much handsomer to train the riders in form of a star or circle, the radii of which (if I may use the expression) will fill the trellis completely at all points, if not so soon as the other, at least in three or four years, if the trees have been properly managed. In either case, indeed, the shoots which lie low, and do not receive the benefit of the sun's rays, will produce but indifferent and ill-flavoured fruit ; but as these parts are intended rather for ornament than use, this disadvantage is of little importance. Most writers recommend watering immediately after the trees have been planted, but if the soil be moist, as it ought to be, to water at this time of the season is improper, as it keeps the

roots cold and uncomfortable, and causes the trees to break weakly. Watering will not be necessary (generally speaking) till about the latter end of February or beginning of March, at which period the roots will most likely be beginning to vegetate. Large quantities should not be given even then, but just as much as may be supposed to nourish the roots in this state, increasing the quantity in proportion as the roots get stronger and more fully established. Free air should be given each day in a greater or less quantity, according to the state of the weather ; but the house should be shut up during heavy falls of rain, snow, &c. Some head down the plants just now, but it is a better method to defer this until March following, when the sap, being in active vegetation, causes the buds that are left to break more vigorously by a great deal. I need only add, that I have all along supposed both peaches and nectarines to be cultivated in the same house, (the treatment of both being in every respect the same,) and that the reader will find the continuation of this subject in MARCH.

Of Forcing Established Plants in the Peach-House.

For reasons which I have formerly stated, (see *VINERY*, p. 13,) it will be necessary that I should confine my observations to one house ; supposing,

in order to answer the purpose in a general point of view, that the fires are to be lighted on the 1st of February ; that the plants are well established, healthy, and in good order, having been pruned in October, (*which see*,) and forced the preceding year. About the middle of the month, or rather earlier, the house having first been cleaned as formerly directed, (*see VINERY*, p. 13,) let the border, inside and outside the house, be carefully forked over, avoiding as much as possible to injure or disturb the roots. Some have supposed that the border requires an equal quantity of manure with that of the vine, and accordingly have recommended that it should be treated in this respect precisely the same ; but if the border has been prepared of such materials, and in the manner I have formerly noticed, manuring it in this way is a great mistake. It is true, that if the border be old, manuring it to a certain extent will be absolutely necessary ; but at no period will it require to be enriched to such a degree as is proper for vine borders, because the nature of the vine and that of the peach is entirely different ; the one producing good fruit only on strong and luxuriant shoots, the other producing nothing on shoots of this kind at all. A peach border should never be too rich, (I mean with dung,) as it only tends to make the plants grow too vigorously, and produce wood of this kind. When it is necessary that the border

should be manured, it should be done in autumn, and not just now, (*see OCTOBER.*) I would recommend, however, that the border outside be covered with littery-dung, at least for some time before, and particularly after the forcing commences, the necessity of which I have formerly noticed, (*see p. 15.*) The border inside should also be covered in the same manner, if it is presumed that the heat of the flues will act too powerfully upon those roots which lie near the surface. In every other respect, the treatment of these plants, during this month, differs nothing from that of vines, unless, perhaps, that the peaches, being of a more hardy nature, require a fully greater quantity of air.

Of Forcing Peaches and Nectarines in Pots or Tubs.

As I formerly observed, these plants, on account of the roots being confined, require the soil to be considerably richer. About the middle of this month, or rather sooner, if it be wished that the fruit should be early, the surface of the mould in the pots should be stirred up, or give fresh soil altogether if the earth at top be old and exhausted. Some recommend watering with draining from a dunghill; but for my part I have never found this method succeed so well as that of lining the surface to the depth of two or three inches with good

juicy cow dung ; the reason of which I believe to be, that drainings of this kind are of too sharp and acrid a nature, and at the same time descend so rapidly on being applied, as to cause the plants push too suddenly, and not by gentle degrees, as they ought. The pots or tubs* should not be less than fifteen or eighteen inches in diameter ; that is, when the plants are of an age to bear fruit. On being surfaced and manured as above, they should be removed from the open air to a peach-house, (now in forcing,) or to a conservatory or green-house, and should be placed where they can receive the greatest degree of light, and of the sun's rays, as well as a sufficient quantity of free air. They should be frequently syringed in order to soften the eyes, and make them break freely, and may also occasionally be watered at the root, providing the soil gets too dry and requires it. They should be kept in the same place until the stoning is fully over, and it is presumed that no more of the fruit will drop off. It will be necessary after this to remove them into a vinery or pine-stove to swell off, observing to place them where they are not shaded from the sun, and where a sufficient quantity of free air can be given them

* They must have a few holes made in their bottoms to allow the superfluous moisture to pass off, otherwise the roots of the plants are apt to become stunted.

each day, this being absolutely necessary in producing large and well-flavoured fruit.

OF PLANTING A NEW CHERRY-HOUSE.

I shall suppose the border to be prepared as formerly directed, and that all things are in readiness for planting. The distances at which the trees are to be kept from each other (I mean on the back trellis) must be regulated according to the length of the house ; which, if thirty feet, or thereabouts, will require three trees ; if forty feet, four, &c., that is, taking ten feet as a good medium. These trees should have been budded or grafted on stocks about three feet in height, and trained to a wall at least two years before being used. It may, perhaps, appear strange that I should recommend trees for this situation which have been grafted thus low ; but I would have it understood, that, in my opinion, it is a much better method to plant the back trellis with trees of this kind only, and allow them to remain, than to plant dwarfs and riders alternately, the latter method will be so much overshadowed by the trees planted in front, (even allowing them to be of a moderate size,) as to prevent the fruit from arriving at any tolerable state of perfection. Besides this, the former method possesses also another advantage, which is, that the trellis may be completely filled at all points in

three years if the trees have been properly managed. In planting (*see last page for the kinds proper to be planted*) the first row of trees in the border in front of the back trellis, observe to keep them—not right in front of those planted against the trellis, but precisely opposite the centre of the spaces betwixt them, and allow an interval of three feet between the row and trellis the other way. The trees in the second row must be planted opposite the centre of the distances in first row, in the same manner as already directed for the first row, but should be kept three or four feet clear of each other towards the front direction, according as the border is wide, or otherwise. With respect to the age or condition of the plants proper to be used for the border, authors are rather at variance; but, in my opinion, as it is mainly to be desired that the plants for this situation be dwarfed much, and grow little to wood, the most suitable are those which have been trained expressly for this purpose, and kept in pots or tubs at least three years before being planted out. I need hardly observe that, in the course of training, they should have been kept open in the centre, the better to admit the sun's rays, and a free circulation of air.

It will also be necessary, in order to prevent the trees from shading each other, that the tallest be kept in the back row, next the trellis, and those of an inferior size in front of them. In planting

these trees, a material difference is to be observed from the principle of planting fruit-trees in general. This difference arises from its being necessary that the trees should be dwarfed, which, in consequence, require the roots to be confined, and not spread out in the ordinary manner. Let, therefore, the plants be turned carefully out of their pots, and with a sharp-pointed stick reduce the balls, but be careful not to take more of the earth away than is merely necessary to make the balls and the soil in the border unite. Reduce the bottom surface of the balls in the same manner, but in planting do not spread out the bottom roots, as is frequently done, for this causes the plants to push too freely. Let the pits be dug out considerably wider than the balls when reduced, and make them of that depth, that, when the trees are planted, the upper surface of the balls may be about an inch lower than the surface level of the border. The border, after this, should be dressed and neatly levelled; and care should be taken not to slope it in any direction; because, when it is necessary that the plants should be watered, a slope of this kind prevents the water from descending regularly around the roots. It will next be proper to set about arranging the plants growing in pots or tubs; in doing which, the only general rule that can be given is, to place just as many as the house will conveniently hold, without being crowded; observing,

however, to be very careful that the plants are not placed so close to each other as to prevent them from receiving the full advantage of the sun's rays, as well as a regular circulation of free air. It will also be necessary to be mindful of arranging them correctly as it regards their respective sizes ; keeping those which are large towards the back trellis, and such as are of inferior size in front of them, and preserving, as far as possible, a slope corresponding with that of the glass, (I mean betwixt the trellis and front part of the house ;) for in any other direction to slope the plants in this manner is inelegant, if not improper, inasmuch as, when the sun shines obliquely, it prevents the plants from being exposed as they ought to be to the sun's rays, an error which should ever be carefully avoided. I might here observe that, in some cherry-houses, it is a rule to have no plants growing in pots or tubs at all ; but, upon the whole, this method is not altogether so judicious as the other, and certainly combines fewer advantages. In advancing this, I would be understood principally to allude to the impracticability of having successional crops of fruit, which, according to the method I have proposed, can easily be obtained, by removing the pots into forcing-houses, of a greater or less temperature than the other. Plants in pots have also another advantage, which is by turning them : the fruit, on all parts of the tree, can be

rendered equally good and high flavoured ; whereas standards planted in a border, and which cannot be treated in this manner, produce always indifferent fruit on that part of them which is not fully exposed to the sun ; more particularly if the plants are allowed only a space of four or five feet square, as has been recommended by some. On the whole being finished, it is a general practice to give the plants in the border, and those on the back trellis, a considerable quantity of water ; but if the soil was as moist as it ought to be when the trees were planted, no watering at this time will be necessary. They will require, however, to be watered afterwards as soon as it is presumed that the roots are beginning to vegetate, but not sooner than this ; for, as before observed on this subject, too much moisture, when the roots are in a dormant state, keeps them cold and uncomfortable, and always causes the plants to break weakly. For the same reason, it should be remembered not to give them too much water at first, but merely a sufficiency to encourage the roots in this state, increasing the quantity in proportion as the roots get stronger and more fully established. Give the plants plenty of free air each day, but shut up the house during heavy falls of rain or snow. With respect to the question, how far it is proper that a newly-planted cherry-house should be forced the first year, opinions are rather at variance ; some

supposing that a slight degree of forcing, while it secures a crop of fruit, does the trees no injury ; and others, that it is not only an advantage to the trees, but that it is of considerable use. The crop of fruit, in no case, would compensate the trouble ; which last opinion, I confess, I think to be much the more correct ; and that, in consequence of the state of the roots, which, though the plants were forced in the regular way, must have made very little progress at the time that the flowering season comes on, and of course are unable to bring forth a reasonable crop of fruit to perfection. Setting forcing, therefore, aside, I need only add, that the plants must have air and water, as above directed, till the beginning of March, or thereabouts ; at which time I shall again resume this subject.

Of Forcing Established Plants in the Cherry-House.

It is worthy of particular observation, that there is scarcely any kind of forcing in which cleanliness is of such essential importance as that of a cherry-house, composed of established plants. I shall, therefore, suppose that, previous to the house being shut up, no pains are spared to render all parts of it comfortably clean ;—referring the reader to page 13 for what I conceive necessary to be done. It will be proper, however, before the house is shut

up, that the border also be attended to, which, if old, and it is presumed that the soil is exhausted, should have a moderate quantity of manure dug into it;—not more, however, than is judged needful to afford the trees that degree of nourishment which an ordinary crop of fruit would require; for otherwise it would cause the plants to grow too much to wood, and thereby prevent them from fruiting well. If the border be in good heart, it will only require to be carefully forked over, (the path included,) and afterwards neatly levelled; keeping the surface as free of inequalities as possible. If the house have dwarfs planted betwixt the flue and parapet in front, the border outside (if not done in autumn) should also now be dug over, and covered to the depth of twelve or fourteen inches with cow or horse dung; rather littery, however, than otherwise, because the juices of rich manure cause the plants to push more freely than in this situation is required; the intention here being that the plants should be much dwarfed and grow little to wood. The use of the dung is to keep the roots comfortably warm, and cause the heat outside the house to correspond in some measure with that within,—a circumstance which is often overlooked, but which is of very considerable importance towards making the sap flow regularly, and preventing the fruit from falling off afterwards in the time of stoning, particularly if

the weather about this time be severe. With respect to the time at which the house should be shut up, much depends on circumstances; for if it is wished that the fruit should be very early, of course the house must be shut up considerably sooner. In this case, I shall make choice of a medium season, that the following remarks may be applicable in a more general point of view; leaving it to the judgment of the gardener to put them in practice at an earlier or later period, as he conceives it necessary to suit the time at which he commences to force by fire heat. Perhaps, for the climate of Scotland, the middle of January is a very good medium season; the house may therefore be shut up about this period, or rather earlier, as preparatory to the fires being lighted on the 1st of February. Cherries being of a hardier nature than either vines or peaches, require a proportionably greater quantity of free air; this, therefore, must be given them as far as the state of the weather will admit; but it will also be proper gradually to decrease this quantity from the time the house is shut up until the fires are lighted, the better to cause the plants agree with the fire heat afterwards. They should now and then in the morning, and before the sun strikes upon the house, be heartily scourged with the engine, which softens the eyes, and on the fires being applied, causes them to break more freely. They may also

now and then be moderately watered at the root, if it is presumed the state of the border requires it ; but otherwise, it must by all means be avoided, as nothing has a greater tendency to throw the plants into a weak and sickly condition than too much moisture at the root, particularly at a time when the growth of the trees does not correspond with it, or make it necessary. The plants, if not pruned in October, (*which see*,) should be done, at farthest, when the house is shut up.

Of Forcing Cherries in Pots or Tubs.

In establishments where there is not a regular cherry-house, plants growing in pots or tubs may be very successfully forced in other compartments. If this mode is followed, the plants ought to be of the age and condition above remarked for those which form part of a cherry-house ; that is, they should have been trained expressly for the purpose, and old enough to produce a crop of fruit which will in some measure compensate the trouble they have cost in the cultivation. I shall therefore suppose that the plants have arrived at this state, and are in good order, having been pruned in October, as formerly noticed. About the middle of this month, or rather earlier, let them be removed from the open air into a conservatory or green-house, if there is a conveniency of this kind, but other-

wise they may be put into a peach-house lately shut up, and in which the forcing by fire heat is to commence the 1st of February. They should be placed as much in the full light as possible, and where they can receive a regular portion of free air, and should be allowed to remain in this situation until the stoning is fully over, and it is presumed that no more of the fruit will drop off. From the time that the plants are taken into the house, and until the fires are lighted, very moderate waterings at the root will suffice; but it will be proper that they should be well syringed, generally speaking, two or three times in the week, if the weather be moderate, which softens and swells the buds, and on the fires being applied, causes them to break more freely. This work should be performed in the morning, that the damp may be fully dried off in the course of the day. As plants forced in this manner are commonly treated with a view that the crops may be successional, it will be proper, as soon as the stoning is over, to remove part of the plants into a vinery or pine-stove to ripen off; where, if placed so as they may receive the full advantage of the sun's rays, they will produce very early and high-flavoured fruit. The remainder, in the mean time, should be allowed to remain, and taken out afterwards by rotation; which, if done at a proper period, the crops may

be had in very regular succession, for a considerable length of time.

OF FORCING FIGS.

It is seldom that a Fig-house is to be met with in forcing establishments, these plants being for the most part forced in pots or tubs from 15 inches to two feet in diameter, or planted against back trellises in the different compartments of the peach-house, vinery, or green-house. The former of these methods is undoubtedly the most eligible for the cultivation of the fig, as a sufficient quantity of fruit can thereby be obtained without the necessity of filling the trellises in forcing-houses, where other plants would be of much greater value ; even in green-houses, figs planted in this situation are by no means so elegant, in my opinion, as many other kinds of plants with which the trellises may be embellished. Figs (in pots or tubs) may either be forced in a vinery or peach-house, if there is no other conveniency, but the temperature of the cherry-house agrees with them much better. If they are forced in a cherry-house, they must be removed into other compartments to ripen off, unless it is meant to keep the cherry-house shut for this purpose after the fruit is taken down ; though, in my opinion, to keep a cherry-house thus shut after the fruit is gathered is very improper, and

would do the plants more injury than perhaps the value of the figs thus obtained would compensate. Figs forced as above should, when trained, be kept very open in the centre, on account of their luxuriant foliage ; the best method to do which is by attaching the shoots to circular hoops placed in the centre of the plants for this purpose. These hoops must of course be considerably wider towards the top of the plant than at bottom, in order to give the plant the required form, and at the same time expose it more fully to the light and free air, without which plants of this kind may not be expected to do much good. It is to be understood that figs planted in the above compartment will require to be much dwarfed, and grow little to wood. In pruning them, therefore, it must be observed to keep cutting out the old wood, as low as it can be done with propriety, supplying its place with young shoots which are most promising, and likely to produce a satisfactory crop of fruit. If it is wished to have the fruit in succession, nearly as many of the plants must be removed from the open air as there is room for, taking in the rest afterwards, according to necessity, and with a view to obtain as close a succession as possible, without too much crowding the house. With respect to figs which occupy the back trellises in forcing-houses, I need not here say much, as the reader, by turning to the month of OCTOBER, will find directions in what way the prun-

ing and training of these plants ought to be performed. I need only add, that I have supposed those growing in pots or tubs to be taken into the house when it is first shut up, or at least very shortly after ; and that both these, and such as are planted against the back trellises, should be frequently well scourged with the engine, particularly when the weather gets warm, to refresh the foliage, and prevent the breeding of insects ; desisting, however, for some time previous to the fruit being ripe, that its flavour may not thereby be deteriorated.

THE PINERY.

Pineries, of whatever construction they are, should consist at least of three compartments, viz. one for crowns and suckers, another for succession, and a third for fruiting plants. As the principles upon which pines are cultivated are somewhat different, it will be proper, before entering upon the more immediate and particular business of forcing, that I should take notice of the various methods which have hitherto been followed with good success, that the subsequent practical remarks, which will fully embrace these methods, may be applicable in a more general point of view, and, as far as possible, suit the respective circumstances under which the practical gardener may be placed. The

most common, and indeed the best, method of growing pines is amongst tan-bark; but where this material is scarce, and cannot be had but at considerable expense, it is customary to supply its place with a quantity of tree leaves, principally from the oak and beech, these being found to last longer, and to produce a steadier and more uniform heat, than any other. In the first of these cases—namely, when tan-bark is used—it is of the utmost importance that it is duly prepared, as very much of the ultimate success depends on the care and attention with which this work is performed. The great object in preparing tan for this purpose is to divest it of a rank and fiery heat; for if plants are plunged into tan which is in this state, they must of necessity be frequently taken out and replunged, until the tan comes to a proper temperature, which, of course, will not be the case until the plants are injured beyond a possibility of recovery; for it is not to be doubted that these sudden transitions from heat to cold, arising from the tan possessing an improper temperature, or indeed from any thing else which produces the same effect, are the chief cause of by far the greater part of diseased plants to be found in forcing establishments throughout the kingdom. The only method of preparing the tan, to give it the temperature required, is as follows:—Let the bark be procured from the tannery as fresh as possible, and laid in a

situation where the ground is hard and level, and where it can be exposed to the sun. In the course of each day, it must be spread out to about the depth of a foot, and this again once or twice turned if the day be fine, which dries the tan equally, and brings it forward considerably sooner. It must always be thrown into a heap at night, and carefully defended from rain at all times. This process must be repeated until it is observed that the tan has become moderately dry; after which it should be removed into a shed, or other convenience under cover, and there frequently turned in the heap, until it is well sweated and acquires a kindly temperature, which may be known by trial-sticks being thrust into it, and let remain for such a length of time as to allow the tan to have its full effect; drawing them afterwards, and feeling them with the hand, which, if the tan be sufficiently wrought, will excite a comfortable sensation, easily distinguishable from the effects of a violent heat. On the other hand, when, in place of tan-bark, tree leaves are made use of, the following process must be gone through:—Let a much greater quantity of leaves, in a dry state, and as soon as fallen from the trees, be collected together than will be needed throughout the year, and built up into a heap where they will not be blown about by the wind, and where they can be defended from snow or much rain. In building them, they must be well

trod together, as this makes them keep better, and also, by excluding the air, causes them to sweat; an effect which it is absolutely necessary should be produced, as, by this means only, such a degree of heat can be raised as will afterwards be necessary in this mode of forcing. There is yet another method of growing pines besides the above, which is by horse dung, substituted in the room of leaves or tan-bark, with a view to obtain a bottom heat. Pines may be grown very successfully by this method; but it requires a much greater degree of skill and care, as it is difficult to keep the bottom heat at an equal temperature, and to avoid the pernicious effects of sudden transitions from heat to cold. In dull and stormy winters particularly, the most unremitting attention is necessary, as, besides the fickleness of the heat, the steam arising from it, which is of a rank and corrupting nature, must be carefully regulated, because, if not timeously dried off, it lodges in the hearts of the plants, and very soon retards the principle of vegetation, if it does not destroy the plants altogether. Add to this, that the evil is often not observed until the spring following, when the heat of the sun begins to act upon the plants, and discovers the disease lurking within, by the sickly and unhealthy appearance which they then assume.

When pines are cultivated in this way, it is of great importance to have the dung duly fermented.

It should, therefore, be had fresh from the stable, and laid into a heap, shaking it well, until it is well sweated, and as the bottom heat in the beds will require to be frequently renewed, a good quantity of it thus prepared should always be kept in readiness for this purpose. There are some who make use of cow and horse dung intermixed in this mode of forcing ; but this is a bad practice, as dung thus mixed does not produce a heat which is so permanent and steady as the other, neither is it so free of steam, but throws out a superabundance, which in stormy winters it is often difficult, if not impracticable, to dry off, and is, therefore, very injurious to the health of the plants. I believe, as it respects the bottom heat, there is not any other material in which pines can be grown with reasonable hopes of success. I shall, therefore, now go on to observe by what means the top heat is obtained in the above methods of forcing, and though the present month is not a time of the year at which new pits or beds can be formed with propriety, yet, that the reader may fully understand the principle upon which these respective systems are founded, as well as the practical treatment resulting from them, I shall, in connection with a few observations on the top heat, give a description in what manner this work is performed, concluding with the practical treatment connected with these systems during the course of the pre-

sent month. There are just three ways, so far as I know, by which the top heat in pineries can be obtained, viz. by a steam apparatus, by flues, or by linings of horse dung externally applied to the pits or beds. Now, if the bottom heat is kept up by means of tan-bark or tree leaves, and that the top is maintained by a steam apparatus or dry flues, (it matters not which, as the principle of heat in both is the same,) the pits should be made up in the following manner: Let as much bark or leaves (prepared as formerly directed) be brought from the heap as will fill the pits considerably higher than the top level, but observe to leave an empty space of three or four feet at the one end. Be careful also, whilst filling, that the materials be well tread, particularly the latter, otherwise they will soon fall too low, and the heat will be much less powerful and steady. After the pits are filled in this manner, thrust a few trial-sticks into them, which allow to remain until it may be supposed that the heat has become as great as it will be, and has had its full effect upon the sticks. Take them out after this, and if it is observed, on feeling them, that the heat in the pits is somewhat greater than it ought to be, (which is likely to be the case, from the materials being removed from the open air into a confined situation,) then let the bark or leaves be turned over, mixing them well, and treading of course, that the heat

throughout the pit may be as uniform as possible. If the tan or leaves have been prepared as formerly noticed, one turning of this kind will be sufficient, and as the empty space at the end should, when filled, possess the same temperature as the bed throughout, as much tan or leaves (prepared of course) must be added in the time of trenching as appears necessary for this purpose, intermixing them well with the other. I need only add on this head, that when the bottom heat is kept up by tree leaves, the pits should be made ten or twelve inches deeper, as it requires a greater body of the leaves to render the heat permanent, and prevent it from falling too low; a circumstance which very generally occurs in pits of the ordinary size. When the top heat is not produced by flues, or by an apparatus, as above, but is maintained by linings of horse dung, externally applied, no difference whatever in making up the beds need be observed; but, on the contrary, if the principle of the bottom heat be different, namely, if it is kept up by horse dung substituted in the room of tan-bark or tree leaves, not only the method of making up the beds, but even the construction of the beds themselves, is materially different, and must be done in the following manner: Let four posts, of a sufficient strength, be driven into the ground, and kept at such a distance from each other as to correspond with the size of the frame. Keep the

back posts about three and a half feet in height, that is, above the surface level of the ground, and those in front six or seven inches lower, that the plants in front of the frame may have a greater share of light, and be more fully exposed to the sun's rays. Place a wooden hurdle, not too closely wrought, on the top of the posts, which fasten that it may not slide, and put the frame above it; fill the frame, to the depth of ten or twelve inches, with exhausted tan-bark or tree leaves, in which to plunge the pots. This done, proceed to make up the bed underneath the hurdle with horse dung, prepared as formerly directed, which be careful to press closely together, and on no account to leave anywise open at top,—I mean immediately underneath the hurdle, otherwise great part of the heat in the bed will escape. Such are the different methods in which the pits or beds are made up in the above modes of forcing. I shall, therefore, now go on to consider, as was proposed, in what manner the practical treatment peculiar to each of these systems is to be conducted, embracing, of course, the three different compartments, and arranging the observations connected with each of the systems immediately underneath the compartments to which they belong.

1.—*Of the Nursing-Pit.*

I shall suppose that the bottom heat is maintained by tan-bark or tree leaves, and the top by flues, or by an apparatus ; that the pits were renewed in November, and will retain a sufficient degree of heat till the middle of February ; and that the plants are healthy, and in good order. It is allowed by those well acquainted with the nature of pines, that, for the most part, the top temperature in which they are cultivated is too great. This is certainly true, and is one of the chief reasons why the plant, in many instances, produces indifferent fruit ; for, though pine plants should always be kept in a growing state, they ought never, on any account, to be allowed to grow too fast, as to deprive them of a sufficient degree of strength and vigour. It is, moreover, almost always owing to the top heat being too great that the plants get sickly, and are infested with the bug and scale—vermin which never make their appearance but where disease invites them, and which, in well ordered pineries, are altogether unknown. The top temperature should, therefore, be kept as near to sixty degrees as possible, morning and evening, (I mean, of course, by fire heat ;) but, in the course of the day, if the weather be fine, it may be allowed to rise three or four degrees higher. I am aware

that some late writers have supposed the heat should be considerably greater than this ; but, as far as I have been able to discover, I consider sixty degrees to be a sufficiently powerful heat, either for crowns and suckers, or for succession plants, from the time they are first struck in the nursing-pit, until it is intended to fruit them. The admission of air is the next thing to be considered ; and, in treating of this very important business, I would remind the reader, that the great thing to be kept in view is, to avoid sudden transitions from heat to cold. Air must be given, less or more, every day, according to the state of the weather, but at no period to such an extent as to reduce the top temperature to less than sixty degrees. The quantity of air thus given must, of course, be as equally divided as possible, because all parts of the pit require a regular and free circulation of air, but it must be observed, not to admit the quantity of air too suddenly, but by gentle degrees, lest the plants, at this time of the year, should receive a sudden check,—a circumstance so very pernicious, that at no time can be too scrupulously guarded against. It should also be remembered to give air at a proper time of the day,—I do not mean, of course, any particular hour, but just sooner or later, as the weather is mild, or otherwise. In sunny weather, the best time to admit the air is when it is observed that the heat of the sun has raised the

mercury a few degrees higher than the standard heat, (that is, sixty degrees ;) because then a sufficient quantity of air may be given for the good of the plants, without reducing the top temperature too low. This, however, it will readily be perceived, cannot be done in the absence of the sun, or when the weather is dull and stormy. A fire should, therefore, be made, at about eight or nine o'clock in the morning, (or the night fire may be renewed if it has not gone out,) for this purpose—not large, but moderate—and so as to increase the top heat to the height it is wished about mid-day, this being, upon the whole, the best time at which to admit air in weather of this kind. The watering of the plants at this season is also a matter of much importance ; but, unfortunately, the knowledge of it is more the result of practice and experience than any thing that can be gathered from written rules on the subject. Perhaps the safest way for those who have had little practice, is to examine the state of the mould, by stirring it up a little, either by the point of the finger, or by other means, if this is not practicable. The plants will not require much water at this time of the year, and what is given should be given, if possible, when the day is mild and sunny, that the plants may not receive injury by being exposed. Unnecessary delay, however, in performing this work, should certainly be avoided ; for, though the wea-

ther, at this season, be occasionally mild, yet it is seldom that the air is quite so temperate as that the plants may be long exposed without danger. It should also be observed, not to spill any water in the hearts of the plants, if possible, at this time of the year, lest they should sicken, and damp off; though, with the common watering-pan, this is perhaps not easily avoided. I would, therefore, recommend that the following instrument be made use of for this purpose, both on account of its being safer, and also the facility with which it may be applied—a circumstance, in large establishments, of no inconsiderable importance. The instrument is made of tin, and consists simply of a tube of three or four feet in length, (according to the width of the pits,) and formed with a regular taper, to the one end of which is affixed a funnel for receiving the water, four or five inches in diameter, and placed upright. The manner of using the instrument will at once be understood from its construction. I have already apprized the reader of the danger of sudden transitions in the cultivation of pine plants; it holds nowhere more true than in the business of watering, and, therefore, it is very necessary that the water be brought to the same temperature with that of the pit before being used. The plants should never be watered over-head at this season; but steaming may now and then be practised with good effect if the weather be fine;

but it is improper, or rather it is unnecessary, if the weather be moist or hazy. It should be done just when the air is taken off for the day, either by the apparatus, or by pouring water on the flues in the ordinary manner. The air should be taken away by degrees, if the day continues good for any length of time; but if a sudden change should take place while the air is on, (which not unfrequently happens at this time of the year,) it must be taken away immediately, lest the top temperature should fall too low. The pits should be covered, generally speaking, about three o'clock in the afternoon, or towards sunset, either with double mats or thick canvass; but if the weather be very severe, it would perhaps be advisable to make use of both. The covers should be taken off about nine o'clock in the morning, or towards sunrise; but they never, in my opinion, should be put on again at any time in the course of the day, otherwise the plants very soon lose colour and become sickly. Such is the treatment which, in the course of the present month, this mode of forcing requires; but if, in place of flues or an apparatus, the top heat be maintained by linings of horse dung externally applied, the practical treatment must in some respects be varied. It is very certain that there is no means by which a top heat can be maintained that is so liable to variation as dung, and hence arises the necessity of having the dung duly fermented; for, if this is not

carefully attended to, there is no other possible method by which the top heat can be rendered tolerably permanent or steady, or by which the dung can be divested of rank and superabundant steam. Indeed this constitutes the main difficulty of growing pines in this way; for, if it should be found impracticable any time in winter to draw off the superfluous steam without admitting an extra quantity of air for this purpose, the plants must either suffer from the effects of cold on the one hand, or be injured by too much steam on the other. The renewing of the linings, too, at this time of the year, is a circumstance which, as it respects the top heat, is of inconsiderable importance. When it is found necessary that new linings should be applied, (which may be known from the general inclination of the thermometer to fall beneath 60° ,) the old linings must not all be removed at once, but only one side of the pits or beds should be thus renewed at a time, allowing the other to remain a few days longer, until the heat in the new lining is found powerful enough of itself to maintain the top temperature to the height required. Without this precaution, indeed, the plants will not do much good, as they would be left for some time at least before the heat arising from the new linings would be of much service, and, if severe weather should chance to intervene, the consequence would be obvious. With respect to watering, or the admission of air,

there is nothing in this mode of forcing which differs very materially from the preceding, only it is sometimes impracticable in severe weather to admit such a quantity of air each day as could be wished, without reducing the top temperature too low. As the plants, however, do not thrive well at all without air, it is a much safer way to admit a little, though it should reduce the top heat a few degrees, than to allow the plants to remain for any length of time without it. It is also necessary, in severe weather, to be more careful in covering the pits in this way of forcing, because the top heat cannot be increased, as by flues or by an apparatus, to keep out the cold, when there may be occasion for it. I would, therefore, advise that a quantity of meadow hay (quite dry of course) be laid betwixt the coverings for this purpose, which is a material of a very kindly nature, and better calculated than any thing I know of to defend the plants from the effects of severe cold.

I shall now offer a few observations on the practical treatment peculiar to the last of the three systems proposed, namely, when the bottom as well as the top heat is kept up by dung. There is no method of growing pines in which there is such a degree of difficulty in conducting the practical treatment as this, which arises mainly from the necessity of maintaining a regular steady bottom heat. It is this, therefore, to which the greatest degree of attention must

be directed, as constituting the main object on which the hopes of ultimate success depend. This being the case, perhaps it is scarcely necessary that I should remind the reader of what importance it is that the dung be duly fermented, as in this method of forcing it is altogether indispensable. It will seldom happen, however, notwithstanding every care that can be taken in preparing the dung, that the bottom heat will not rise in a few days to a considerably greater height than the plants are able to bear, (I mean burning the roots,) in which case the bed must have holes made to pass through it, here and there at intervals, from the one side to the other, three or four inches in diameter, and right underneath the hurdle. These holes must be allowed to remain open until it is found the fiery heat has abated, and the bed throughout possesses an equal temperature, shutting them up, of course, afterwards. I should observe, however, that the holes are not intended exclusively for the regulation of the bottom heat, but are also meant as a passage by which to carry off the superabundant steam, without an extra quantity of air for this purpose, which, at this time of the year, as I before observed, is a dangerous expedient, and should, therefore, never be resorted to. When the bottom heat is beginning to be less powerful than it ought to be, the bed should, of course, be renewed; but if it should happen to be severe weather when

this is necessary to be done, it will be advisable rather to apply fresh linings to prevent the heat from falling, till a favourable opportunity occurs for this purpose, than run the risk of destroying the plants by an imperfect bottom heat. There is nothing in giving air or water which is peculiar to this system, considered apart from the two preceding ; but in covering it should be observed not to make use of the materials (I mean the mats and hay) on any account in a damp or wet state.

The Succession Pit.

The treatment of succession plants at this time of the year, whether growing by one or other of the above methods, is precisely similar in every respect to the management of crowns and suckers. I need not, therefore, enter into particulars, but may just observe in general, that the several duties heretofore brought under consideration, namely, the regulation of the top and bottom heat, admission of air, watering, covering, &c. should in this compartment be very carefully performed, particularly the admission of air, and the regulation of the top and bottom heat, which last is very essential towards preventing the plants from starting prematurely into fruit. It should be observed, too, whilst working among plants of this size, not to bruise or break off the extremities of the leaves, if

possible, as, besides giving the plants a mutilated and unsightly appearance, it causes the leaves to fall into a lingering decay, from which no future care can recover them, and which is more hurtful to the health of the plants than is generally imagined.

The Fruiting Compartment.

If it is not intended to remove the plants into the fruiting compartment till February, they must of course be still treated in every respect as succession plants ; but if they were taken in in September, (which I believe is the most usual practice,) the practical treatment for the present month must, in a slight degree, be varied. I do not mean, however, to say, that it will be necessary to vary the practical treatment if the plants have been previously growing by fire heat ; on the contrary, it is only when dung has been made use of for this purpose that any difference whatever need be observed. The circumstance to which I here allude arises from the plants having been removed into a top heat that is of a different nature from that to which they have formerly been accustomed, which renders it necessary that they should be naturalized as it were to the change. I mean, that pines which have formerly been growing in a moist heat never fully agree with the other, but are ever inclined

to start into fruit too soon. What this proceeds from, if it is not the lack of moisture, is not, I believe, well known; but it is found that the only means by which such a disagreeable circumstance can be prevented is steaming, which must, therefore, be regularly practised morning and evening, either by the apparatus, if there be one, or by pouring water on the flues, paths, &c. in the ordinary manner. In other respects, the treatment of the plants is noways peculiar. I have only, therefore, to request the reader to turn for further directions to p. 44, Nursing-Pit, on the cultivation of pines by fire heat.

OF FORCING STRAWBERRIES.

Strawberries are most successfully forced in flued pits, where such can be obtained; but as pits of this kind are commonly occupied either in growing pines or early melons, these plants are for the most part forced in hot-beds, or in the different compartments of the peach-house, grape-house, or pinery. It is true, the temperature of the cherry-house agrees fully better with the nature of the plants than either of these compartments; but it is seldom that a regular cherry-house is to be met with, unless in large establishments; and, moreover, there is little conveniency in houses of this kind, at least to carry on forcing to any great ex-

tent. But whether the plants are forced in one or other of these houses, (the pinery excepted, which is only fit for the plants to be taken into to ripen off the fruit,) is not, perhaps, a matter of much importance; it is more essential that the practical treatment be rightly conducted, as on this, more than any particular situation, depends the prospect of ultimate success. There is not, indeed, much difficulty in forcing strawberries, the main thing being to bring the plants forward by degrees, and not to expose them to sudden changes previous to the fruit being set. They should, therefore, be removed from the open air into the peach-house, or other compartments intended for them, at the same time that these houses are shut up for early forcing, and may be allowed to remain in these altogether, if very early fruit is not wished for; but, if this be required, the plants must be removed into the pinery, as soon as there is reason to believe that the fruit is fairly set, and will endure the extra heat without danger of dropping. Plants forced in flued pits should be taken in about the beginning of the season; having the pots plunged quite up to their rims, and be allowed no fire heat for at least fourteen days afterwards, in order that vegetation may be brought on by degrees. For the same reason, it should be observed, not to put on too large fires at first, but merely as much as to affect the top heat a little,

increasing them gradually afterwards, till the temperature rises to fifty degrees, at which it should be kept nearly stationary, (with exception of a slight allowance for the state of the weather, or the admission of air,) till the fruit be set. It may then be raised to sixty or sixty-five degrees, according to circumstances ;—to the latter, of course, if it be wished to have the fruit come in early. These plants never succeed well at a great distance from the glass, but grow tall and weakly, and, for the most part, produce untimely flowers, which never set, or at least set very partially. They should, therefore, be placed as near to the glass as possible, to have them fruit well ; nor should the runners be neglected as conducive to this end, but should be pinched off from time to time, as superfluities that require nourishment, and are noways useful. Both before and after the fruit is set, the plants must be freely watered, and while the fruit is green, but should have very moderate quantities afterwards, lest the flavour of the fruit be impaired. Air should be given each day, to as great an extent as the state of the weather will admit of ; and steaming may also occasionally be practised with good effect, not, however, when the fruit is ripening, but at any time previous. Plants which are forced in other compartments are commonly placed on shelves constructed for this purpose, which do

very well, if these are kept sufficiently near the glass, and are not too much shaded. It is customary, where this kind of forcing is carried on to a great extent, to have the crops come on in succession, by taking in part of the plants at a time, (say 100 or 200,) part a few weeks afterwards, &c. in rotation. Some take them in as early as November, or the beginning of December; but this is not advisable; at least, I have never seen strawberries taken in before the middle of January produce a crop worth the trouble of attending to. There are also various ways of preparing the plants for forcing, as well as some difference of opinion respecting their proper age. Some prefer forcing the old stools, others reject these, and force the runners only. Those who follow the first of these methods generally root up the plants in autumn, lifting as much as will fill pots seven or eight inches in diameter, which they plunge in the earth during winter, and remove into the forcing compartment in spring. Those who force the runners choose those of the preceding year's growth, lift and plant them into pots in March or April, (two or more in a pot, according to its size,) and plunge in the earth during summer, and throughout the remaining part of the year, giving them occasional waterings, and attending to them in other little matters, as preparatory to their being taken into the forcing compartment the fol-

lowing spring. This method of forcing is certainly more judicious than the other, though I believe that those best acquainted with the cultivation of this plant seldom practise either of them, but consider the following as calculated to give more satisfaction. It is this :—Lift the young plants (the strongest, of course) produced from the runners of the same year in June or July, which plant out into good soil, choosing a situation that is well sheltered, and is fully exposed to the sun. Give them occasional waterings if the weather be very dry, and be mindful to have the intervals well hoeed, and kept clean of weeds. Let the plants be lifted in February or March the spring following, dressed, and planted into pots seven or eight inches in diameter, three or four of them in a pot, according to its size, observing to plant carefully, and make use of the proper soil, (*see p. 7.*) Plunge the pots, quite up to their rims, in the earth in a freely exposed situation, and let the plants have regular supplies of water throughout the summer season, pinching off any flowers that may make their appearance about this time. Cover the plants with a little dry litter on the approach of winter, to prevent the pots from the effects of frost, and be careful, on removing them into the forcing compartment afterwards, to have the plants neatly dressed, and the pots fresh surfaced, using mould as before.

Of Forcing Cucumbers and Melons, whether grown in Dung Hot-Beds or Flued Pits.

These plants are commonly cultivated in one or other of these ways, and generally with good success, there being few kinds of forcing that are more practised or better understood than this. As the reader, however, may not have had an opportunity of seeing these different systems carried into effect, I shall, in the course of the year, drop a few hints on the practical treatment peculiar to each, commencing, for the sake of perspicuity, with a short view of the principle on which the pits or beds are commonly constructed and prepared for after use. Dung hot-beds are either sunk or built on the surface. Those sunk have generally the sides and ends built with brick or stone, and paved at bottom. It is customary to have the bottom made quite level; but I do not quite approve of this: it were better, in my opinion, to have it sloped a little towards the south, and with a drain in front running east and west inside, which carries off the drainings of the dung, and keeps the bottom comfortably dry. Beds of this kind are commonly sunk about twenty inches, or two feet. Those built on the surface have, or at least ought to have, a smooth and hard bottom to rest upon, somewhat inclined towards the south, and with a drain in front; though this

latter circumstance may be dispensed with if the ground have a sufficient slope. Such were the simple constructions used by our forefathers, who nevertheless had abundant crops, and understood, I believe, the culture of these plants equally as well as any in modern times. Of late years, however, this mode of forcing has somewhat fallen into disuse, and cucumbers and melons are now frequently grown in flued pits, such as are used for nursing pine-apple plants. The construction of these pits, as might be expected, is various: in some the bottom heat is kept up by tree leaves or tan-bark, and the top by fire,—a principle, in my opinion, the most eligible of all, and least liable to variation. In others, the bottom as well as the top heat are both produced by the same cause—namely, by linings of horse dung externally applied; the heat arising from which is made to pass through a reticulated wall of brick-work, of which the pit outside is formed. These apertures have a direct communication with the flues inside, whence the heat finds a ready admittance; and the flues being of an equal depth with the materials with which the pit is filled, serve at once to excite in the materials a sufficient degree of bottom heat, and to keep up the top temperature by means of the united effect of the heat thus raised in the bed, and that produced from the uncovered part of the flues' surface at top. This plan is M'Phail's, and is not unfrequently adopted. I

might here give an account of various other pits lately invented, but as the utility of these has not yet received the sanction of practical gardeners, I forbear, and go on to observe, that, for early forcing, flued pits (I mean those already described) are the best calculated, as the plants are in no danger of damping off in dull weather, which they frequently do in ordinary hot-beds; add to which, that there is no necessity of having the plants raised in a seed-bed in this method of forcing, but either the pine-stove may be made use of for this purpose, if there be one, or, if not, the pits themselves, which will answer fully as well. There are various opinions respecting the materials of which hot-beds should be composed. Some use cow and horse dung intermixed; others horse dung itself; a third party prefer a mixture of tree leaves and horse dung; while a fourth use tree leaves only, but with linings of horse dung, to excite a sufficiently powerful heat. Perhaps it is not easily to say which of these methods it would be most advisable to follow; though, upon the whole, I do not think a mixture of cow and horse dung quite so answerable for early forcing as the rest, as it throws out a much greater quantity of steam, which, not agreeing with the plants, they are thereby more apt to damp off. But though this is the case, it must be left to the gardener to choose one or other of these varieties, as will best suit his circumstances; but ob-

serving, of whatever materials it is intended the beds shall be built, to have the dung duly fermented sometime before. I would not advise, however, that the dung should be reduced to a half rotten state, as some have recommended: it is sufficient, if it be of good quality, to have it well mixed, and thrown into a heap, allowing it to sweat twelve or fourteen days before using; or, should it not be found convenient to put off so long as this, it may be had sooner, by covering it all over either with littery dung or short straw, to the depth of ten or twelve inches. This I have found to be the most effectual means by which a sudden fermentation can be excited, or by which the external surface of the heap can be sufficiently fermented without the necessity of turning it. I am aware, however, that in many situations dung of this quality cannot be obtained; and the lighter and more littery kinds of it will not ferment in this manner, at least to such a degree as is necessary. To have it, therefore, brought into a state fit for use, it should, when first thrown into the heap, be well watered; in seven or eight days after this, if the heat be considerable, it should be turned and again watered, repeating this process a third time, of course, if it is presumed, from the state of the dung, that the fermentation is not yet complete. As soon as the dung is fit for use, the building of the beds ought to be proceeded with, only it must

be observed not to have this done sooner than the state of the plants (I mean in the seed-bed) makes it necessary ; of which, see farther on. Let them be built ten or twelve inches larger every way than the frame ; and be mindful to have the materials previously shaken and well mixed, whether it is meant to build with horse dung only, or with a mixture of tree leaves, as before observed. Whilst building, let the dung be regularly beaten or moderately tread, for if the bed is not solid throughout, it will not settle equally, but fall into inequalities on the surface, which the soil laid upon it afterwards being incapable of, without rending, exposes the roots of the plants to be torn asunder. Keep the beds five feet in height at back, and four in front, if the dung be good, but raise them six inches higher if it be light or littery, to allow for a greater degree of sinking. Give them the same slope, of course, for at this early period of the season, the more fully the plants are exposed to the sun's rays the better. Leaf beds should be built of the same size as the frame, but must have an edging of dung (I mean independent of the linings) ten or twelve inches broad, to prevent the sides of the beds from falling away. Beds of this kind should be well trod in building, and may be kept the same height as the other. Flued pits, I mean those wrought by fire heat, may be filled either with tan-bark or tree leaves, but as the bark is least liable to sink, it is

the most suitable, if it can be obtained. To prevent the breeding of insects, it would be advisable, in the first place, to have the pits well cleaned, together with such parts of the walls, flues, &c. as may stand in need of it, pointed and put into good repair. Let the materials, whilst filling the pit, be regularly well trod, but be mindful not to use them till by a due course of fermentation they are fit for it ; otherwise the pits will not only fall too low, but the heat in a short time afterwards will become far more powerful than the roots of the plants are able to bear.—(*See Observations on Fermenting the Materials, at p. 40.*)—M'Phail's pits are generally made about three feet in depth, and are filled either entirely with vegetable mould of decayed tree leaves, or have the bottom composed of stones, brick-bats, &c., with two feet of vegetable mould at top. This is perhaps the best method of filling these pits, as it allows the heat thrown out by the bottom surface of the flues to circulate freely towards the centre ; whereas, if the materials were more solid, the heat would not penetrate much deeper than the surface.

I shall now take into consideration, as was proposed, the variety of practical treatment these different modes of forcing require during the course of the present month ; beginning, of course, with the manner in which the seedling plants are raised. I am aware that, for the climate of Scotland, this is

rather earlier than most writers have recommended ; but it should be considered, that where difficulties are to be contended with, success is the more meritorious ; and besides, it is in some measure necessary that I should suit my observations to this season, because there is scarce any kind of forcing which excites such an universal spirit of competition among gardeners for priority as this. About the first of the month, therefore, let the seed-bed be prepared, which be mindful to build carefully, and with dung of the best quality, (duly fermented,) if it can be obtained. Keep the bed of dimensions suitable for a one light frame of about six feet by three, build it five feet in height at back, and four in front ; this done, put on the frame, which fill with tree leaves, well trod of course, to within twelve inches of the glass, both at back and front ; above which, lay six or seven inches of sand or dry earth, among which to plunge the pots. Let the seeds be sown immediately afterwards, either in light hazelly loam, or vegetable mould of decayed tree leaves, using pots of about five inches in diameter, and between four and five inches deep. Be mindful to have the mould well reduced, and rather in a dry state, with which fill the pots loosely to within an inch of their brims, sowing the seeds regularly, and covering them to the depth of half an inch equally all over. Plunge the pots quite up to their rims, and place them within six or eight

inches of the back part of the frame. Put on the sash after this, and let the frame be covered at night in the ordinary manner. If there is reason to believe that the seeds may be destroyed by mice, (which not unfrequently lurk about hot-beds,) care must be taken to have the pots covered during the night, till the plants are out of danger ; that is, till the seed leaves have expanded, and the husks dropt off, using either other pots of the same size for this purpose, or pieces of glass, slate, &c. in the first place, and pots afterwards, observing to have the covers always removed by sunrise in the morning. No air need be given for a day or two till the heat begins to rise ; but when this is found to be considerable, and the steam makes its appearance, less or more must be admitted every day, according to the state of the weather ; not, however, by sliding the sash up or down for this purpose, but by lifting it up a little, and placing something underneath it. This, together with giving a little aired water, should the mould be dry, is all that is necessary to be done till the plants have broke ground ; but as soon as this takes place, there will be much more need of circumspection, as the plants are then in danger of being destroyed, not only by excess of bottom heat, but also by superabundant steam at the same time. The effect of the former may be successfully guarded against by the common practice of drawing up the pots a little, or by placing

them on the surface altogether ; but the means commonly used for the prevention of the latter, namely, the admission of a greater degree of air, is by no means calculated to answer the end, as, at this time of the year, no portion of air that can be given with propriety will be sufficient to draw off the steam to such a degree as the welfare of the plants requires, and though they should survive treatment of this kind, they will at least be weak, probably good for nothing.*

Thus circumstanced, I would advise the Practical Gardener to try the following expedient, which I have often had recourse to in like cases, and never once found to fail. Let a roller six or seven feet in length, and three inches in diameter, be procured, with which bore a row of holes about eight inches lower than the frame across the bed, six or more in number, according to the quantity of steam to be got rid of. Keep these holes open as a passage for this purpose so long as is necessary, but be mindful at the same time in what manner this affects the top heat, for, as the steam decreases, the top heat will decrease also, and might fall lower than the tender age of the plants would

* It will be advisable to sow a few seeds every eight days, or thereabouts, for the first month, lest the young plants which were first raised should happen to become sickly, either from the want of attention being paid to them, or by the corrupting steam in the bed, as above noticed.

agree with, which, at this time of the year, requires to be kept in a temperature as near to 65° as possible, morning and evening, allowing, of course, a slight rise from the effects of sunshine, should the day be fine. Let the plants have no more water than just to keep the soil moderately moist, and be careful not to give air now as formerly, (I mean before the plants came up,) but let a mat be hung over the opening, that the force of the air may be broken before it reaches the plants. Give less or more every day, according to the state of the weather, and admit also a very small portion during the night to destroy noxious vapours, and to prevent the bed from having a fusty and unpleasant smell. Cover the bed in the evening towards sunset, with two double woyen mats at least, which remove always by sunrise in the morning, that the plants may not be too much shut out from the light, than which there are few things more injurious to their welfare. Continue this treatment till the plants have grown to about the height of two inches ; afterwards proceed to plant them out into nursing-pots, four inches in diameter, or thereabouts, and as much in depth. Let the mould used for this purpose be rather of better quality than that in which the seeds were sown, and be mindful to have it put into the bed the night preceding, that it may acquire a degree of heat somewhat corresponding to that in which the plants have formerly

been accustomed. Fill the pots within two inches of the brim ; at bottom, with small pieces of hard dry turf ; above which lay an inch or so of soil, amongst which to bed the roots. Turn the plants very carefully out of their seed-pots, and place three of the strongest in each nursing-pot, about half an inch from the side. Handle the plants very gently, and observe to lay a little of the soil, finely reduced, immediately above the roots, filling the pots to the regular height, that is, to within half an inch of the seed leaves of the plants. This done, proceed immediately to dig over the soil in the bed to its full depth, adding a little fresh mould if the old has sunk too low ; clean the sash if it stands in need of it, and plunge the pots quite up to their rims towards the back part of the frame, giving the plants a little aired water, that the earth may settle more closely around the roots ; put on the sash after this, but be mindful to admit no air till it is observed that the plants have taken with the earth and begun to vegetate. It will now be necessary to attend to the state of the top heat, which, if beginning to decline a little, must be kept up by the application of linings to the two sides of the bed. Let these linings be duly fermented, and build them two feet broad at bottom and eighteen inches at top, cutting away the old dung within an inch or two of the sides of the frame. Line the ends about eight or ten days after this in the same

manner, and observe to keep the top surface of the dung of the same height as the frame all round. Allow it a day or two to settle, after which cover it with a quantity of dry straw neatly all over, fastening the straw with hay ropes, held by hooked pins. Let the soil in the bed be stirred up now and then, to keep it fresh, and wipe down the sash occasionally, should it get clogged with steam or dust. Continue to give air and water as formerly directed; but observe, as the heat in the linings begins to decrease, to cover rather more carefully up at nights. I should now speak of the removal of the plants into the fruiting beds; but as the treatment of them in other modes of forcing remains yet to be noticed, I must refer the consideration of this particular a little.—(*See end of the Month.*)

Flued pits, or a pine-stove, have this advantage over dung hot-beds, that, from their construction, cucumbers may be raised and brought to perfection in them at any time, without having much to fear from the effects of the weather. As the majority of gardeners, however, do not commence their labours before the return of the season, I shall take up the subject at this period, that it may answer the purpose in a more general point of view. Let the seeds be sown precisely as before directed; but observe to make use of mould somewhat stronger in quality. Plunge the pots in the pine-stove, (towards the front, where the heat is con-

siderable,) if there be one ; if not, in the pits themselves, placing them in the back part, if the pit be wrought by fire heat ; in M'Phail's, towards the centre. Give just as much water, aired, as to keep the soil in the pots moderately moist ; but admit no air, I mean in the pits, till the plants begin to break ground. Be very careful after this to cover the pits closely up at night, as these compartments generally abound with wood lice, or afford a shelter for snails, both of which are equally destructive. Keep the top temperature now as near to 65 degrees as possible, morning and evening, and give more or less air each day, according to the state of the weather, observing to cover the pits (M'Phail's in particular) carefully up at night. Proceed thus till the plants have grown to about the height of two inches ; after which plant them out into nursing-pots, as formerly directed, (*see* p. 68,) using mould of the same quality as before. Give a little aired water to settle the earth about the roots, and plunge the pots in the same situations as those in which the plants were raised, admitting no air till the day following at least. Steam the plants regularly morning and evening after this period, and keep the top temperature as near to 65 degrees as possible, observing to renew the linings in M'Phail's pit as soon as the heat begins to fall below this. Give water as frequently as the state of the mould makes it necessary, and

continue to admit air, and to cover up at night as formerly, removing the covers always by sunrise in the morning. By the end of the month, if all has gone well, the plants will have got each two or three rough leaves, and must be planted out (I mean into the hills) for the last time; which being done in flued pits precisely as it is in ordinary hot-beds, the same observations will serve for both. Let the beds be built, as formerly directed, a few days previous to the plants being removed, which keep of dimensions suitable for a two or three light frame as may be used, preparing as many, of course, as may be thought necessary to produce the quantity of fruit required. Put on the frames in the first place for a few days; but be mindful, as soon as the heat throws out a strong and dense steam, to have them taken off and well washed, observing, at the same time, to level the surface of the bed, if it has fallen into inequalities, a little. Let the frames be put on again without delay; which done, proceed to make ready the hills for the reception of the plants, using mould for this purpose of the quality I have formerly recommended, (*see* p. 7,) and rather in a dry state. Some writers advise to have the mould sifted or broken extremely fine; but this is a mistake in my opinion; as, in the course of the summer, what from the heat and the frequent waterings, it is sure to get too stiff to allow the roots room to push

freely ; nor will they be found at any time indeed to grow so bold and vigorous in soil thus reduced, as in that which is somewhat rough and cloddy. Keep the hills exactly opposite the centre of each sash, and build them about twenty inches broad at bottom, twelve or fifteen inches at top, and fifteen inches in depth, which, if the frames be of a sufficient height, should still leave a space of six or seven inches betwixt the mould and the glass. The hills finished, lay three inches of the same mould all over the surface of the beds ; then put on the sashes, and let them be closely matted up till the day following at least, at which time it is most likely the hills will have acquired a sufficient degree of warmth in which to plant without danger. Make the hole in the centre of each hill an inch wider than the size of the balls to be placed in them, and of such a depth as that the top surface of the balls may stand half an inch lower than that of the hills. Turn out the plants carefully, and without breaking the balls, if possible ; but previous to planting, observe if the roots have got matted : if they have, let the balls be reduced a little, and the roots moderately thinned out ; if not, plant them entire. Lay some of the finest of the mould immediately around the roots, as high as the top surface of the balls, to which, after stirring it up, add half an inch of fresh soil, levelling the hills neatly, and settling all with a little aired water.

Such is the treatment of these plants during the present month: that of melons is precisely the same; only I would apprise the reader, that, with respect to the time at which to begin to force, a difference of three weeks, or thereabouts, ought to be allowed; because, though melons may be grown as early as the other, yet as they require a much greater portion of sun to cause them set their fruit freely, in most situations and in most seasons, it would amount to little else than lost labour.—
(*For farther directions, see FEBRUARY.*)

Of Forcing Orange Trees, with a view to produce Ripe Fruit.

These plants are seldom cultivated in Scotland, but are, for the most part, regarded as inmates of the green-house or conservatory, of which, undoubtedly, they form one of the finest ornaments, being not more remarkable for their beautiful foliage than the delightful fragrance of their flowers. But, notwithstanding these advantages, it is when their delicate shoots are loaded partly with green and partly with golden-coloured fruit, that they present the most imposing appearance, and excite in the mind of the spectator those pleasing sensations which a true relish for the productions of nature never fails to inspire. I shall, therefore, present the reader with a short account of the

practical treatment this interesting plant requires to have it bring forth its fruit to perfection, not without a wish that the culture of it in this way, in our respectable establishments, were considered as deserving more attention than has yet been given it. The orange is a species of plant which requires at all times to be well kept; therefore, who would force them with good hopes of success, must be careful to have the plants from the nursery healthy and in good order, not too young, and in full bearing, if possible, that no mistake may arise in the kinds. The best adapted of which for this purpose are the common Maltese, sweet China, bergamot, bloody-fruited Seville, manderine, common lemon, citron, and lime; to which may be added, a few plants of the shaddock, though the fruit of these is inferior, and more calculated for show than use. Perhaps I ought here to observe, that orange trees will, in the course of the summer, with ordinary green-house treatment, produce a few ripe fruit; but then they will not do so from year to year afterwards, nor indeed the following year, without a considerable share of additional heat, which the plants require to cause them push shoots sufficiently vigorous for this purpose. Hence it has become a common practice, where there is not a regular orange-house, to have the plants mainly forced in pots or tubs, kept in the conservatory during winter, and removed into forcing com-

partments in summer. I shall first take the treatment of them into consideration, beginning with the winter months. It may safely be affirmed, that no ligneous plant, during winter at least, can receive too great a portion either of the light or of the sun's rays; the pots or tubs, therefore, whatever may have been advanced to the contrary, should always be placed towards the front part of the house, and, if possible, right opposite the sashes commonly let down for the admission of air. The temperature, from this period to the commencement of the growing season, (that is, the latter end of March,) should not be allowed to exceed 50 degrees by fire heat, nor fall below 40 degrees, and great care should be taken at this time with respect to watering, as these plants will not at all agree either with too much damp or drought, but get languid in a short time, and lose colour in the leaves, which, once injured, no care can recover. The soil in the pots therefore should, on this account, be regularly examined once or twice a-week, not merely by looking at it, for I have seen those who had considerable experience deceived in this way, but by stirring it up to the depth of an inch, or thereabouts, with the point of the finger, to which, if it retain a right degree of moisture, it will slightly adhere, if too dry, not at all. It would also be advisable now and then to stir up the whole surface of the soil in the pots, because,

being of a strong nature, it is apt, from frequent waterings, to become indurated; in which state, though a sufficient quantity of water was given, it would do little good, as, instead of sinking right down as it ought to do, most part of it would escape by the sides of the pots, leaving, of course, the heart of the balls as dry as before. Cleanliness, too, is of the most essential importance. Indeed, I have seen many plants of this kind sickly from no other cause than the want of attention to this particular, which, independently of the injury it does the leaves, and this is no trifling matter, by allowing them to remain covered with dust, lays the foundation for the breeding of thousands of insects afterwards, which, as Mr. Nicol has justly observed, seem to delight in disease and decay, as flies do in carrion. Once a-week, therefore, or every fortnight at farthest, the plants should, with water of the same temperature of the house, be carefully syringed; but, lest the leaves should remain too long damp, a thing not advisable at this time of the year, let it be observed to choose a day for this work that is likely to be sunny, and to have it done in the morning, a short while previous to the sun striking upon the house. Most gardeners wash the plants just as they stand, that is, upright; but this is not the most judicious way: it were better, in my opinion, to be at the trouble of holding the pots a little inclined, as this allows the

water to run off the foliage without falling into the soil in the pots, which, by this means, might easily be rendered too damp to a considerable depth. With respect to pruning, not a great deal need be said. Indeed, plants grown merely for show do not require it; but the object here being to combine elegance with some degree of utility, renders a regular course of pruning necessary. The plant produces its fruit, I may say, almost exclusively on the young wood of the preceding years; so the whole art of pruning it with propriety consists in cutting out the old, and encouraging the young wood in every part of the tree, only the pruner must be mindful not to cut out the old wood to a greater extent than he sees an opportunity of supplying its place with the other, which, in general, may be found by shortening all luxuriant shoots, with part of those, if it be necessary, that have the least promising appearance of blossom. These several particulars comprise every thing necessary to be done in the way of practical treatment, till about the beginning of May, when the plants, having set their fruit, must be potted and removed into other compartments, as before observed. It may not be requisite, perhaps, that all the plants should be shifted into larger pots, though, upon the whole, it is the safest plan, at least, I have ever found plants cultivated in this way to push freest when the roots were allowed

some space to run in. I do not conceive, however, let it be remembered, that this effect is wholly to be ascribed either to the quantity or quality of the soil, but depends fully as much on the means taken to enrich it, namely, the top surfacing of the mould after potting, to the depth of an inch or so, with manure, which, being thus useful, should always be attended to, observing to prefer sheep or deer dung to any other, if such can be obtained. Remove the plants, in the first place, into a peach-house, if there be one, for a few weeks, then take them into the pinery, and let no pains be spared, whilst they remain in these compartments, to have them kept in a creditable and workmanlike manner, frequently exercising the syringe, turning the plants now and then to the light, surfacing the mould occasionally with fresh dung, watering cautiously, &c. with any other little particular which may be esteemed conducive to their welfare, observing to have the plants taken into the conservatory again, as soon as the fruit is ripe.

The next method of cultivating these plants is in the conservatory alone, where they ripen their fruit in about sixteen months, and in which they are either trained to the back trellis, or planted as standards in the border. They thrive very well in this way, and require nothing material to greenhouse treatment except pruning, and to have a quantity of good rotten dung dug in every year

around the roots about the commencement of the growing season. But the best method, undoubtedly, of cultivating the orange, with a view to produce ripe fruit, is in a regular orange-house, constructed for the purpose, because the temperature in a place of this kind can be kept higher or lower without running the risk of injuring other plants, equally, if not more, valuable than themselves. Utility, in a word, constitutes the sole aim of those who follow this method of forcing, for which reason it may not be amiss to take notice, in the first place, of the following particulars, as materially conducive to this end,—viz. the preparation of the area, which should be dug out to the depth of three and a half feet, paved at bottom, and filled with well manured yellow or brown loam, obtained from the sward of an old pasture fully decomposed. The planting, in which the trees should be arranged according to their sizes, as in a cherry-house, have five or six feet square allowed for each, the balls a good deal reduced, and the roots carefully spread out; and, lastly, the comparative vigour and fruitfulness of the trees, which renders it necessary that the orangery should consist entirely of standards planted in the area, or of these with a few trained to the back wall or trellis; it being well known that no art of man will ever make trees confined in pots or tubs, however large, to grow with such vigour as in the open

ground. It would exceed the limits of this work were I to take into consideration every little thing connected with the practical treatment of the plants throughout the different months of the year in a house of this kind. Suffice it, then, to observe in a general way, that, from the 1st of October to the 1st of March, they are to be kept in a temperature between 45° and 50° , admitting air accordingly; pruned during this period; watered rather sparingly; are to have a quantity of good dung dug in about the roots, and kept perfectly clean; that, during the blossoming season, the heat is to be increased five degrees by fire, or a few more from the effects of sunshine; a greater quantity of air given, and the syringing discontinued; that the fruit is to be thinned, if necessary, when about the size of small plums; the use of the syringe resumed, and the temperature increased gradually till the middle of May, but not to exceed 70° at this period; that the heat, with the addition of 10° from sunshine, is to be continued at this till the fruit be ripe; the soil to be turned up in the meantime once a-week, and rather freely watered; that the temperature is to be again reduced to 45° by the latter end of September; and, finally, that the most usual form in which the fruit is presented to table is with part of the wood and foliage appending to it, by way of garnishing, though it would, I think, be incomparably more elegant and gratify-

ing, if, when it is practicable, the plants were set on the table in their own natural and attractive form, have the fruit taken from them as wished for, and be again removed when the repast was over.

Of Forcing Asparagus.

This esculent is forced in two ways, viz. in dung hot-beds and flued pits; the former of which is the most common method, the latter the surest and least expensive. Few kinds of forcing require less skill, or are of shorter duration, and none, I believe, where detailed instructions would be of less use. Under these circumstances, I do not conceive it necessary to enter upon the subject at large, but merely to glance at the most important particulars as connected with ultimate success, leaving it to the judgment of the gardener to make such allowances as, from the nature of the situation, climate, &c. he sees meet. Those who force asparagus in the common way have generally the beds made new, though these are not so suitable for this purpose as an old one, on account of the steam, which, being too powerful, is apt to injure the plants, particularly during a long continuance of dull weather. Turfing over the bed, indeed, has been considered as a preventive against this, and no doubt it is, but not to that extent, I allege, which some writers would have it believed; at

least I have never been able to grow grass of such size and flavour, in this way, as in the other. Should new beds be preferred, however, it would be advisable not to have them composed entirely of horse dung, even though fully fermented, but with this and a quantity of tree leaves intermixed, which qualifies the dung, and renders the heat steadier, and less violent. They should be built in the same manner as cucumber beds, (*which see*, p. 59,) but six or eight inches lower, with a surface of turf, as above noticed, observing to keep the grassy side of the turf undermost, and to have it well trod or beaten with the spade when laid. The flued pits commonly used for this kind of forcing are those in which melons were cultivated the year before: they are prepared in different ways; some use fermented dung, intermixed with tree leaves; others dung only; while others prefer having the pits filled with fermented dung at bottom, and twelve or thirteen inches of old bark at top; but these methods, besides being too troublesome, are all faulty, on account of the steam. The simplest and best plan is not to make use of dung at all, but merely to add as much fresh bark or leaves, well mixed with the old, as will bring the pit to its former level; the heat arising from which is mild, and void of steam, and will last till the pits must be used for other forcing, which, in general, is as long as any family desires

asparagus cultivated in this way. The forcing season, on account of Christmas, when a dish of asparagus is much esteemed, generally embraces a period of five months, beginning with November, and ending with March, though it may be the end of April in some situations before the plant comes in, in the natural ground. It matters little as to any difference in the practical treatment, whether the forcing is carried on in pits or beds during this period, only regard must be had to the change of the season, which being generally colder the first three months than afterwards, makes a little more attention at this time necessary. In a general point of view, however, the practical treatment, taking one month with another, is nearly the same, at least the difference is so trifling, as to supersede the necessity of particular observation; for which reason I shall choose January as a good medium season; reminding the reader, that if it be an object to have asparagus by Christmas, the forcing must commence about the middle of November.

The pits or beds being built, the next thing to be done is to surface them with soil to the depth of four inches, on which to place the roots. It is not very material of what quality the soil is, providing it is fresh, and not too poor. Some use the siftings of old tan-bark, to which others add a quantity of sandy earth; but lightish black loam, if it can be obtained, intermixed with vegetable mould

of decayed tree leaves, produces better grass than either. The composition should be sifted, or well broken with the spade, when used, neither very damp nor dry. The plants should be taken up in mild weather, with as little injury done to the roots as possible; any of which that are found decayed or rotten must be taken away, together with the dead stalk, and any small hard pieces of earth, stone, &c., if such have got in about the buds. It has been alleged that the plants should not be more than eight years old, otherwise part of the buds will not spring; but this is to be understood only of inferior soils, as asparagus, well managed, will yield abundant crops at a much greater age than this. The best way by which to judge in this case, is from the productiveness of the plants in the open ground the same year, at which time, if the buds spring freely, they will do so now. The stools, on being dressed, should be removed into the pits or beds without delay, planted with the roots neatly intermixed, those of the one stool with the other, and kept level at the top; observing, before covering the crowns, to work in a little of the mould carefully amongst the roots with the hand. Three inches of it, well reduced, and moderately dry, should then be laid over the crowns throughout, the top surface dressed, and the sashes put on. It may be proper here to observe, that, in old hot-beds, the heat is produced by strong

linings of well fermented horse dung applied to the two sides; these having first been perforated horizontally, to draw the heat into the centre. The holes should be made rather numerous, about three or four inches diameter, and not in rows, but here and there, at regular distances, from top to bottom. No air need be given, either in pits or beds, till the heat thrown out by the materials begins to rise above fifty degrees, (the standard for asparagus,) about mid-day; it must then be given, in a greater or less degree, each day, according to the state of the weather, both with a view to reduce the top temperature, and at the same time to admit the superfluous steam to pass off, (I mean in the beds,) observing to allow the mercury to rise as high as 50 degrees, from the effects of sunshine. It is when the plants begin to break ground, however, that the admission of air ought to be more particularly regarded, air being essential towards giving the grass the right colour and flavour. Perhaps it may not be practicable, in beds, to give as much as could be wished for this purpose, without reducing the temperature a little too low; but this is not very material for a few days. In pits the case is different; for, should the weather be severe, it is only to increase the top heat a few degrees by the flues, and admit air to any extent that may be necessary. Matting up at night is advisable throughout, if it be presumed that the

cold will reduce the top heat beneath the standard; but is of no use if the heat be sufficiently powerful to prevent this. The watering of the plants is just the same in principle as watering in general, the perfection of which is to have the soil in a naturally moist state—that is, neither too damp nor too dry. The grass should be used when about the height of two or three inches: it may either be cut from the crowns, or twisted off with the thumb and finger, providing it is done with caution, and so as not to injure the rising buds. I need only farther observe, that, if a second crop is wanted, it will be proper to have other beds (either new or old) in readiness for forcing about the time that the first crop begins to break ground; so of a third, fourth, &c. in succession; only new beds are not necessary after the second crop, as, by the time this is partly gathered, the former bed will be clear, and may again be used if thought well of, with as good hopes of success, and less trouble.

Of Forcing French Beans, Cresses, and Mustard.

French beans are forced in various compartments, according to conveniency. The pine-stove, the peach-house, the vinery, flued pits, and slight hot-beds, are all made use of for this purpose occasionally, though in most situations the forcing is carried on either in a pine-stove or in flued pits;

the former of which I consider the most eligible if much fruit is not required. The seeds in this mode of culture are commonly sown in pots, (though large boxes will do if these are not to be had,) ten or twelve inches diameter, and as much in depth; three or four in each pot, which is only filled to the depth of six inches, including an inch for the covering of the seeds. This partial filling is done with a view to admit of the plants being earthed up afterwards as they grow, which is found conducive both to their strength and fruitfulness. It is not very material in what kind of soil the seeds are sown, provided it is fresh and not too poor. I have used cucumber mould occasionally, at other times the mould in which melons were grown the former year, and sometimes the common garden earth, with little difference in the success, only, if the latter be used, it should be taken from a quarter that is not too much exhausted. The forcing season, when a constant supply of fruit is wanted, includes eight months of the year, namely, from October till the latter end of May, at which time the plant comes to perfection in the natural ground. Flued pits, if used for this purpose, should be prepared in the same manner as directed for those in which asparagus is cultivated, (*see p. 83,*) only the soil must be laid on to the depth of twelve inches in which to plant. If it be desirable to have the fruit early, the plants must be grown in pots to

the height of three inches before this, and planted out; but if not, it is only necessary to sow the seeds in the ordinary manner, that is, in rows across the beds fifteen or sixteen inches apart from each other, allowing four or five inches for the distance in line. The temperature should be kept up by aid of the flues to about 80 degrees, morning and evening, admitting air each day at every favourable opportunity, and observing to mat regularly up at night if the weather be severe. The plants should be earthed up once or twice, have regular supplies of water, and be now and then syringed, which keeps off insects, (the thrips in particular,) and saves the trouble of fumigation. Cresses and mustard are either grown in a slight hot-bed, or in flat pans or boxes, placed in any compartment of which the temperature exceeds 50 degrees. A hot-bed is used when a sufficient supply cannot be raised in the other, and is prepared in the same manner as other hot-beds, but with only three inches of soil in which to sow the seeds. The soil should be light but fresh, well smoothed on the surface before sowing; the seeds thrown in very thick, and beaten lightly with the spade, observing to water rather freely, and to admit considerable portions of fresh air each day, if the state of the weather will permit.

FEBRUARY.

Of Forcing Established Plants in the Vinery.

If the directions given on this subject last month have been duly attended to, the plants will now be in a state fit for the commencement of the forcing by fire heat. There is one, and but one, important feature in the practical treatment of the plants during this month, that is, the swelling and subsequent breaking of the buds in a bold and vigorous manner, on which, in fact, the hopes of ultimate success in a great measure depend, and for the promotion of which every thing that is now done is to be considered as subservient. With this view, therefore, the temperature is to be slowly increased; nothing is more detrimental or injudicious than too rapid an excitement at first. Six degrees advance in the week, or twenty-four throughout the month, regulated morning and evening, I conceive as sufficient, allowing the house to have been about 40 degrees at the time that the fires were first applied. The plants are to be regularly and freely syringed, (using aired water,) morning and evening, for the first three weeks at least. This is not a common practice, but it is a most excellent means both of softening the bark and the buds, as well as inducing the sap to flow

freely. Water at the root may be given, generally speaking, once in three days, though this is not to be understood of all the plants, because in every vinery there must be some of the vines whose roots lie near to the surface of the flues that proceed under ground from the furnace ; these must be watered every two days at farthest. The water should be given in proportion as the increase of vegetation in the plants makes it necessary ; that is, in larger quantities towards the end of the month than the beginning, observing, however, never to give less at any time, but rather more than will moisten the soil to the deepest placed roots and fibres. The vine, indeed, from what cause I know not, agrees much better during the growing season with too much damp than drought ; there is, therefore, nothing to be dreaded from its receiving a little more water now and then than it exactly requires. Fresh air being of great importance, less or more must be given every day, according to the state of the weather ; not all at once, however, as is sometimes done, but by gentle degrees, and not to such an extent as to reduce the temperature beneath the progressive standard, morning and evening, above stated. This is easily accomplished in compartments wrought by fire heat ; for, should the weather be severe, it is only to increase the temperature a few degrees by aid of the flues, and admit air accordingly ; if favourable, the action of

the sun upon the glass, generally speaking, will produce the same effect. These particulars, with the two following, comprise every thing necessary to be done in the course of the present month. I allude to disbudding and the stirring up of the soil, using a rake, in those parts of the border that are not covered with manure. This may be done once a-week. The disbudding must not be done till the leading or fruit buds have become full swelled, and may be discovered from those which are sterile, and tend only to confusion. The cultivator will find no difficulty in making this distinction with sufficient accuracy; for these buds, if they make their appearance at all, invariably rise at the bottom of the other, and are much smaller in size.—
(See MARCH.)

Of Forcing Established Plants in the Peach-House.

Presuming, as formerly, that the forcing by fire heat is now to commence in this compartment, I would request the reader to observe, that the practical treatment for the month includes the five following particulars;—viz. the regulation of the temperature, admission of air, syringing, watering at the root, and the stirring up of the border occasionally; which, as they differ only in degree from those already considered as relating to the

vinery, (*see preceding page*,) I shall speak of in as concise a way as possible. Increase the temperature gradually; but do not allow it to exceed 50 degrees at the end of the month. Regulate this increase morning and evening; and be mindful to admit as much fresh air every day as the state of the weather, taken in connexion with the necessary advance of the temperature, will admit. Exercise the syringe, or engine, freely every morning, till the flowers begin to expand; but desist by all means afterwards, otherwise there is every chance of destroying the means which nature has provided in the organization of the flowers as conducive to fructification. Give as much, but never more, water at the root as suffices to keep the soil in a moderately moist state, and stir up the border once or twice a-week with the rake.

Of Forcing Established Plants in the Cherry-House.

It may not be amiss, in resuming this subject, to give the reader a hint how much more difficult this kind of forcing is considered to be than the two preceding, with regard to the ultimate attainment of the object in view, namely, the production of a satisfactory and fair crop of fruit, which is doubtless to be ascribed to the plants being of a hardier nature, and disliking fire heat. Nothing

therefore, on the fires being applied, is to be regarded as of greater importance in this compartment than the right regulation of the temperature, the increase of which, morning and evening, must neither be rapid nor irregular, but steady, uniform, and moderate, not exceeding 45 degrees at the end of the month. Air must be given in as great quantities every day, be the state of the weather what it will, as is possible, consistently with this increase ; and the syringe, or engine, is to be exercised forcibly every evening, previous to the fires being put on, and till the flowers begin to expand, desisting afterwards during the blossoming season. Water at the root, if the house consist entirely of trees planted in the border, must be given, as formerly directed for the peach-house ; but should the house be composed partly of these, and partly of plants growing in pots or tubs, more frequent supplies of water, I mean for the latter, will be necessary. It should also be observed, to loosen the surface of the soil now and then in the pots or tubs, lest, becoming indurated, the water should escape by the sides ; and the border, in like manner, should be stirred up twice or thrice a-week with the rake.—(See *MARCH.*)

THE PINERY.

Of the Nursing and Succession Pits.

As it is allowed by the best modern pine growers that the treatment of nursing and succession plants, to do them full justice, ought ever to be the same, so I shall not (to prevent repetition) make separate articles of them in future, but comprise both under one head. It will be remembered that, in speaking of the practical treatment last month, I adverted to the three different systems which may be followed in the cultivation of pines in these two compartments; I have now therefore to apprise the reader, that the several particulars there taken into consideration as peculiar to these systems are, with slight allowance for the advance of the season, to be followed up to about the middle of the present month, when the plants having filled their pots, as may be presumed, with roots, must be repotted, as preparatory to the more immediate commencement of vegetation. Opinions are rather at variance with regard to the manner in which this work should be performed for the best. Some suppose that, when potting is necessary, the plants ought always, whether young or old, be put into larger pots, with the balls entire; while others allege that, at this time, the balls ought to be entirely taken away, the

roots trimmed of decayed fibres, and the plants put into the same pots as before, which I should think is the best practice for succession plants, because the roots of these commonly get a good deal diseased towards the hearts of the balls; but as it respects crowns and suckers struck only last autumn, there is certainly no necessity thus wholly to abstract the balls from the roots, unless the plants are unhealthy, or do not stand firm in their pots. The first thing necessary to be done, as connected with the potting at this time of the year, is to have the mould taken into the potting-house, (not a shed,) ten or twelve days previous to use, turned frequently during this period, and either sifted, or, what I conceive to be better, well broken with the spade. This ready, choose the first mild day (if sunny, the better) that presents itself, and let the plants be removed with as little delay as possible. Observe, before turning the succession plants out of their pots, to tie up the leaves which protrude much towards the top, the better to facilitate the plants being replunged after potting, as well as the greater security of the leaves against being broken or bruised. Turn out the plants carefully; break the balls in pieces; cut off all decayed roots and fibres; and twist off a few of the bottom leaves. This done, proceed to make ready the pots, which, if old, be mindful, in the first place, to have well cleaned, (I mean inside,) at the

same time observing to lay two inches of broken pieces of hard dry turf, which is far superior to brick-bats or gravel, at bottom, to serve as draining. Hold the plants in the centre of the pots, the bottom leaves an inch lower than the margin, then fill in the mould to this height neatly and regularly all round, but forbear to press it hard in part, except immediately around the stem. Keep it from getting betwixt the leaves, if possible, and let the surface be made perfectly level. Crowns and suckers, should there be any, that have become unhealthy, or do not stand firm in their pots, are, with the exception of less draining, to be potted in the same manner; healthy plants of this age are to have the balls only moderately reduced, a few of the bottom leaves taken away, and shifted into pots, clean and drained of course, about an inch larger in diameter, and as much in depth.

The potting finished, it will be necessary to attend to the state of the pits or beds, with respect to the efficiency of the bottom heat, which, by this time, will be beginning to decline a little, and must be renewed. To do this in a proper manner, three things must be considered;—viz. the means by which the bottom heat is maintained—the state of the materials—and the length of time for which it is intended this renovation shall serve. As it respects the first of these particulars, the reader will please to observe, that a bottom heat kept up by tree leaves

or tan-bark ought never at this time to be wholly renewed, unless there is an absolute necessity for it: but as a substitute for these materials, the bottom heat be maintained by horse dung applied in the manner noticed last month, as connected with the third system of forcing proposed, the renewal of it at this time must be total,—I mean that the dung underneath the hurdle ought to be entirely removed, and its place supplied with fresh materials; these having been duly fermented, of course. The addition which it is necessary should be made to pits composed of bark or leaves, can only be correctly ascertained by an examination of the materials to a considerable depth, which, according as they are found inadequate to produce the heat wished for, must be disused; keeping in view, at the same time, that the quantity of fresh materials added, on the old being removed, must be equal towards maintaining the bottom heat till May. Two methods, however, have been suggested with regard to the manner in which the new bark or leaves are to be applied; some suppose that a lair of the old materials, twelve or fourteen inches in thickness, should always be laid on at top, in which to plunge the pots, directing to incorporate the new with the old bark or leaves underneath this; others observe no distinction of this kind, but advise to intermix the materials, new and old, indiscriminately, from top to bottom; which I conceive is the

best practice, providing the fresh materials have been duly fermented.—(*See JANUARY*, p. 37.)

The pits finished, let the plants be brought immediately from the potting-house, and replunged, observing to sink the pots quite up to their rims, as well as to keep them perfectly level at top. Place the largest of the plants towards the back part of the pits or beds, and the less ones in front, according to their respective sizes; allowing sixteen inches, or thereabouts, for succession, and eight or nine inches for nursing plants, distance in line, (I mean from centre to centre, inclusive of the pots;) at the same time observing to remove the ties of the succession plants, and adjust their leaves. All things put in order again, it only remains for me to repeat, that the practical treatment, as it respects the regulation of the temperature, admission of air, watering, matting up at night, &c., is to be conducted, during the remainder of the month, in the same manner as directed in January, whether one or other of the systems already alluded to be followed, only it would be advisable, if the mould with which the plants are potted retain a moderate degree of moisture, to withhold water at the root for the first three or four days, till the heat begins to rise. No more need be said, unless, perhaps, with a view towards preventing the roots of the plants from being scorched when the bottom heat is maintained by

dung ; which, being an important matter, I may take the liberty of reminding the reader, must be very carefully guarded against, perforating the bed, if need be, the second or third day after the fresh materials have been put in, and allowing the holes to remain open till the violence of the heat has abated.

The Fruiting Compartment.

The renewal of the bottom heat being the first thing necessary to be attended to in the management of this compartment during the present month, as much fresh bark or leaves must be added, according to what has formerly been used, as, judging from the state of the old materials, is thought adequate towards maintaining a sufficient degree of heat till May, intermixing the one with the other, (*see preceding page,*) and observing to have the fresh bark or leaves duly fermented. This done, it may be proper to offer a remark or two on what has been advanced, as to the manner in which the plants are to be put in order at this time, previous to being replunged. Top dressing the old soil is admitted, on all hands, to be of an advantage ; but there are some who advise to have unhealthy plants, and those which have started prematurely into fruit, turned out of their pots, the roots trimmed, and put into the same pots, as

before ; conceiving that, by this means, the former may, in a greater measure, be recovered, as the latter will produce tolerably good fruit from the check which they receive. This may be true, for aught I know, as I have never tried such an experiment ; but undoubtedly it discovers a great want of skill in the cultivator ; for who that understands pine growing would have his fruiting plants in a condition like this ? It is true, fruiting plants, growing in a moist heat, are very apt, on being removed into a dry one, to start into fruit too soon ; but, as I formerly noticed, this may invariably be prevented by the regular use of steaming, morning and evening, till the plants become naturalized to the change. The common method of surfacing is, simply to have the old soil taken out to the depth at which the roots begin to appear, adding the like quantity of new, which some direct to keep higher towards the centre than the edge of the pots ; but this is not a judicious plan, as the convexity of the soil forces the water to find its way down by the sides of the pots, whilst the surface immediately around the stems of the plants is, comparatively speaking, left dry. The only defect attending the ordinary method of surfacing is, that, as it admits not of the mould being raised higher than formerly, on account of watering, so it gives no encouragement towards inducing the plants to push young roots farther up

the stem, though these young roots have a most powerful effect in swelling off the fruit to advantage. For this reason, I would recommend the following method, which, though a little more troublesome than the other, is better, and admits of the soil being raised to any height wished for, without the necessity of rounding it. This is by having slips of tin or thin wood, $2\frac{1}{2}$ inches broad, and as long as to overlap a little, bent in around the mouths of the pots, leaving an inch and a half, or thereabouts, above the margin. The fresh soil is to be filled in to within an inch of the tops of these hoops; but before this is done, or the hoops are applied, the old soil should be taken out to the depth above mentioned, and the plants stripped of the decayed leaves at bottom. The surfacing finished, the plants must be replunged, as before, allowing them two feet distance in line from centre to centre, and arranging them in like manner as directed for succession plants, (*which see*,) the better to admit the sun's rays and a free circulation of air. With respect to the regulation of the temperature, admission of air, and other ordinary particulars, I need not enlarge; as, excepting the temperature, which must be increased to 65 degrees by the end of the month, there is nothing in which the treatment of the plants materially differs in this from the preceding month; to which, therefore, I would refer the reader.—(*See JANUARY.*)

Of Forcing Cucumbers and Melons.

Before resuming the consideration of this subject, I would again shortly put the reader in mind, that the seeds of melons, intended finally to be transplanted in March, must be sown in the beginning of the month at farthest, raised in the fruiting cucumber beds now at work, and treated in all respects as already directed for seedling cucumbers, (*which see.*)—It will be remembered, that in treating of the cultivation of cucumbers last month, I left off at the time that the plants had newly been removed into the fruiting beds. The first thing, therefore, of importance, to which attention must now be paid, if the plants are grown in ordinary hot-beds, is the state of the bottom heat, which, should it get too powerful, must be reduced, by having the beds bored in like manner as directed for the seed-bed last month, shutting up the holes when the danger is over.

When the plants have taken with the earth, and begun to vegetate, which will be in a day or two, it will be proper to pinch off the tops of them, with a view to encourage the runners to push more freely. For though the truth of this has been questioned, there is no more doubt of its efficacy, than there is in stopping the motion of the sap by the same means in any other plant; the side shoots of which must, of necessity, receive

that portion of nourishment which goes towards sustaining the top were it allowed to remain. It should be done carefully, however, and without wounding the stems. Water at the root should be given very sparingly at this period in dung hot-beds. What is given should not be applied till the mould has become tolerably dry, nor should it be poured close in around the stems, otherwise the plants will have a chance to damp off, but towards the extremities of the roots, using water of a soft quality, and which has been aired, as it is termed, that is, brought into a state possessing a tolerable degree of warmth. Air must be admitted every day to as great an extent as possible, consistently with the state of the weather, and the maintaining of the top heat to its proper height, which, for cucumbers, should not be less than 65 degrees, observing to give and take away the air by degrees, as well as to have a mat still hung over the opening, lest its keenness should act too powerfully upon the plants.

In the course of six or eight days, if all has gone well, the roots of the plants will be beginning to make their appearance outside the hills, which must consequently be enlarged to allow them room to run in. The ordinary way, indeed, in which this is directed to be done, is not merely to have the hills enlarged a little, but to cover the beds to the full depth required at once ; but I should con-

ceive this to be a very injudicious method at this early period of the season, because it prevents the heat from ascending to such a degree as is necessary, if not to the preservation of the plants, at least to their success. The soil used should rather be in a dry state than otherwise, and must be put into the beds the night preceding, having first been well broken with the spade. Ten or twelve inches of it, equally applied, will suffice till the weather has become more favourable, which must be kept at the same height as the hills at top, though not level, but with a slope from back to front corresponding as much as possible with that of the glass; observing, meantime, to have the plants covered with a flower-pot, that they may not sustain injury from being exposed.

The hills finished, it will be proper to have the runners, if they have grown to a sufficient length, laid down in the ordinary manner—that is, by small hooked pins, six or seven inches in length, which should not be thrust to the head at once if the runners be strong, otherwise there is great danger of breaking them. The pruning, or rather stopping of the runners, with a view to throw out lateral shoots, must be attended to shortly afterwards; though, perhaps, I ought to observe, that it is not agreed to what length they may be allowed to grow before this can be done to the best advantage. Some specify seven or eight joints as a good medium

in general ; others think this too much, providing the plants show fruit sooner, and speak of the fourth or fifth joint ; but it is not the value of the fruit that the original runners may chance to produce to which the pruner ought to have any regard in this work, but the vigour and fertility of the laterals that afterwards proceed from them, which the nearer these rise from the bottom of the other will be the greater. I would, therefore, advise to have the primary runners always stopped at the fourth or fifth joint at farthest, whether they show any appearance of fruit or not ; the shoots issuing from which, it is to be observed, are to be trained about the distance of eight or nine inches, generally speaking, from each other, and immediately topped when grown at one joint beyond where the first fruit sets ; being mindful to pick out the hearts cautiously, and without wounding the stems, otherwise it may be impracticable to continue the leading shoots to the distance intended. About the latter end of the month, it is probable the bottom heat will be beginning to decline, in which case, fresh linings, (duly fermented,) must be applied, either to one or both sides of the beds, as may be found necessary ; observing to have the beds perforated in the first place, as directed for the seed-bed last month, (*see p. 67,*) with a view that the heat may be more uniform and lasting. I need only add farther, on the cultivation of cucumbers

in this way during the month, that I have all along supposed that the beds are to be covered at night, and uncovered at sunrise in the morning, in the usual manner, and with due regard, of course, to the safety of the plants, the state of the weather considered.

I come now to speak of the management of the plants in flued pits, of the construction taken notice of last month; but on this part of the subject I must necessarily be very brief, as, with the exception of one or two particulars, the practical treatment differs nothing from what has been already advanced as connected with ordinary hot-beds. The particulars to which I allude arise from the dry nature of the top heat in compartments of this kind, together with the means by which the top heat is maintained. Cucumbers, it is well known, do not fully agree with a dry heat if long continued; to do them full justice, therefore, in this way of forcing, no opportunity of steaming, which the favourableness of the weather affords, should be lost. A little more water at the root will also be necessary; and if it should be impracticable at any time, (I mean in compartments wrought by fire heat,) on account of severe weather, to admit such a quantity of air as is wished for, without reducing the temperature too low, it will be proper to put on a small fire in the morning for this purpose. M'Phail's pit will probably require to have

the linings partially renewed towards the latter end of the month ; but to what extent must be determined by the condition of the materials, taken in connexion with the state of the top heat, which ought to be kept as near to 65 degrees as possible, morning and evening ; but allow a few degrees of rise from the effects of sunshine, should the day be fine.—(*See MARCH.*)

MARCH.

OF FORCING ESTABLISHED PLANTS IN THE VINERY.

Presuming that the directions given on this subject last month have been duly attended to, I would request the reader to observe, that, as the swelling and subsequent breaking of the buds in a bold and vigorous manner was to be regarded as the most important result connected with the cultivation of the plants during that period, so the grand object to which the labours of the present month must be directed is the setting of the fruit. To succeed in this in such a way as to give satisfaction, some little difference in the practical treatment will be necessary, though not till the plants have come into blossom, which will take place, generally speaking, about the middle of the month. Up to this period, therefore, the cultivator is to proceed precisely as

directed last month ; but as soon as the blossoming season comes on, the temperature must be increased gradually, from 65 degrees to 70 degrees, regulating this increase morning and evening, as usual. I ought, perhaps, here to observe, that 70 degrees is somewhat lower than most writers have recommended ; but at 75 or 80 degrees (the heat given by such) the fruit, I imagine, sets rather weakly. The temperature advanced, making the ordinary allowance for sunshine, (four or five degrees,) must be kept as near to 70 degrees for the remaining part of the month as possible ; during which time less or more air must be admitted every day, according to the state of the weather ; being mindful not to give air in dull weather at this period without taking the precaution of increasing the temperature a few degrees by aid of the flues, as sudden transitions at this period, and while the plants are in blossom, might be attended with very bad effects. Nor must the syringe be used on any account at this time ; but steaming ought to be regularly practised, morning and evening, so long as the blossoming season continues ; it being found that grapes set fully better in a moist heat than a dry one. Water at the roots must be given rather sparingly than otherwise, yet not less than is necessary ; of which the best idea I can give the reader is to keep the border in a medium state betwixt damp and drought, resembling the degree of natural mois-

ture to be found in general in the open ground. These few particulars comprise every thing necessary to be done in the course of the month, except pruning, of which I should have said very little, but that it has given rise to opinions diametrically opposite each other, some of which must of necessity be wrong. It is not any difficulty in the pruning of the plants to which these discordant notions are owing; they are partly the result of a doubt entertained how far it is proper that vines should be pruned at any time, with a view to their advantage, or have sprung from an uncertainty considered with regard to the setting of the fruit, viz. whether it were best, for this end, to prune the plants as soon as the clusters have all shown, during the blossoming season, or after the fruit is set. On the former of these opinions I conceive it unnecessary to offer a single remark. No man who suffers his vines to grow wild under glass will be long in finding out his mistake: the latter is deserving of more regard. Yet I should think it is plain, that to allow the fruiting shoots to grow four or five feet beyond where the last cluster makes its appearance, is only exhausting the vigour of the plants to no purpose. Indeed, it can hardly be doubted that the degree of nourishment this superfluous wood requires would be of considerable advantage, both towards promoting the health and vigour of the flowers, as well as the setting of the

fruit ; and, besides, there is a much better chance of the vines throwing a supply of good bearing wood from the bottom for the succeeding year, when the shoots are stopped early than afterwards. All these shoots, therefore, with the exception of those which are barren, and which should be entirely taken away, ought to be stopped as soon as grown, in my opinion, at the first joint beyond where the last cluster appears, the laterals issuing from which, it is to be observed, together with the tendrils and any water shoots that may chance to rise from the old wood, must be pinched off from time to time afterwards, looking over the plants twice or thrice a-week for this purpose.

This being all, as it respects pruning, which the fruiting shoots require for the present month, it only remains for me to speak of the management of those issuing from the bottom, and that are intended for future bearers. These must not be stopped like the other, but laid in at full length as they grow, observing to keep them as clear of the fruiting shoots as possible, and not to allow them too small a space in the ties. Should any clusters appear on them about the bottom, as is sometimes the case, they must be pinched off, as must all the laterals and tendrils, though the former of these ought not to be pinched off entirely, as directed for the fruiting shoots, but at about half an inch above the first joint from the bottom, this small

part being of service, I imagine, in drawing nourishment to the eyes; such is the method of pruning these shoots. The next thing to be considered is the number of them proper to be left in order to obtain a satisfactory crop of fruit the year following,—a point which has ever been regarded as the most important matter connected with the cultivation of the vine, and indeed with justice, since it includes not only the present value, but the future usefulness of the plants, it being an easy matter to fruit vines in such a way as to throw them out of a bearing state altogether, many instances of which I have myself seen. The cause of this, in every case that has come under my observation, was an excess of bearing wood, which, dividing the sap into too many channels, renders the wood weak and trifling, even like straw, as a certain author observes; thus leaving the cultivator no other alternative than either to cut the plants down, and thus lose a year's crop, with a view to obtain good bearing wood, or suffer them to produce a few solitary small bunches from year to year, not less unprofitable than disgraceful. Nor does it signify, as to this degeneracy, whether the plants are fruited on spurs or on the young wood rising at bottom, above mentioned, for too much wood will inevitably bring on sterility, sooner or later, in either case, though, as a principle of fruiting

the vine, there can be no doubt that the latter method is superior to the former, and ought to be preferred. For these reasons, with others that might be mentioned, such as the too great exclusion of light and of the sun's rays, the necessity of picking off the leaves in consequence, &c., I do not conceive that, in an ordinary-sized vinery, more than three shoots ought to be allowed to remain; I mean for the luxuriant and free-growing kinds, nor more than two shoots for those which are delicate. This is fewer, I am aware, than is generally left; but it is to be remembered that the same number, equally vigorous as those from which they sprung, will be wanted from year to year afterwards in succession; and, moreover, if three strong shoots (and this is the only way to obtain such) are well managed, they will produce a greater weight of fruit than four or five weak ones, independent of the superior appearance of the fruit, from which the ingenious cultivator will at once receive pleasure himself, and be able to give satisfaction to others.—(*See APRIL.*)

OF THE NEWLY PLANTED PEACH-HOUSE.

If the young plants in this compartment have gone on well, they will begin to vegetate in the course of this month, and must be cut over, not immediately, I mean when vegetation commences,

because the circulation of the sap at this time is very trifling ; but when the top buds have become full swelled, and that it is possible, as I formerly observed, to throw a greater quantity of the sap into those left at bottom, with a view that they may break more vigorously. The length proper to be taken off must be determined by the relative strength and vigour of the shoots, viewed in connexion with the space of trellis it is intended the laterals should afterwards fill ; of which I need not here enter into the consideration, nor indeed of the summer pruning, as the reader will find full directions in OCTOBER and MAY with respect to both.

The laterals that are left after the summer pruning may be laid in, generally speaking, from five to six inches apart, that is, of the riders as well as the dwarfs, grown as permanent trees ; but if it is meant that the riders should be temporary, four or five inches (I mean for these) will be sufficient ; the object being in this case to have as much fruit from the riders as possible previous to their being taken up. The ties must be kept rather easy to allow for the swelling of the shoots, and fresh air must be freely given every day from sun-rising to sun-setting, up to the beginning of June or thereabouts, at which time, and in future, the house ought to be kept open night and day, except during heavy falls of rain, that might make the border

too damp. Water at the root should be given rather sparingly about the commencement of the growing season ; but as the season advances, and the plants get stronger and more fully established, much more may be given with propriety, indeed will be required ; yet it ought to be observed never to make the border damp beyond what may be termed a natural degree of moisture, of which I trust the intelligent reader will easily understand the meaning.

To prevent the breeding of the red spider, (that most destructive insect,) the syringe or engine must be forcibly exercised twice or thrice a-week, some time before, but particularly after the warm weather sets in ; and should the green fly meantime make its appearance, recourse must be had to fumigation in the manner directed for the Cherry-House, (*which see.*)—I need only add, that the syringing will have the best effect in the evening in hot weather, and that it would be of advantage to stir up the border lightly now and then with the rake.—(*See OCTOBER.*)

Of Forcing Established Plants in the Peach-House.

If the labours of last month have been fully successful, the plants in this compartment will come into full blossom about the beginning of this,

and will set their fruit in the course of ten days or a fortnight afterwards. This is a most critical period in the forcing of all kinds of stone fruits ; to have the plants, therefore, do well, the cultivator must be careful to keep the temperature as steady as possible at 55 degrees,—I mean morning and evening, which, it will be recollected, was to have been increased the latter end of last month.

Fresh air is of great importance, in fact, is peculiarly necessary at this time, not more on account of the blossom, which it strengthens and invigorates, than of the setting of the fruit, which, without air, would be very partial and defective. It must be given every day less or more, according to the state of the weather, and always by degrees, observing, moreover, to put on a small fire in the morning, if the weather be so severe as that it would be impracticable to give air without reducing the temperature beneath the standard above stated. But while it is necessary, so long as the plants are in blossom and are setting their fruit, thus to admit regular portions of free air, it is to be recollected, that it is no less necessary that an excessive degree of moisture be avoided at the root, inasmuch as it not only weakens the flowers, and causes the setting fruit to drop off, but very often brings on that most inveterate disease the mildew, which to cure, without very much destroying the plants, is impossible. The border should therefore be kept in a

state rather approaching to drought than otherwise at this period ; but when the season of the setting of the fruit is fairly over, and the plants have at once to give nourishment to it and to support the young shoots they put forth, a little more water may be given with propriety. In addition to these particulars, and as of very considerable utility, it must not be neglected to practise steaming regularly every evening, from the time that the flowers begin to open till the petals have dropped off ; and as a full body of steam is what is wanted, (particularly if the day has been sunny,) the cultivator, to obtain it, must be mindful to pour the water on the flues when the fires are brisk. When steaming is no longer necessary on account of the blossoming season, it will be proper to resume the use of the syringe or engine again twice or thrice a-week, the better to refresh the foliage, and, at the same time, with a view to prevent the breeding of insects, which, as a certain author observes, are more easily kept down than brought down. I need only farther observe, that it is in the course of this month, namely, when the fruit has grown to about half the size of ripe cherries, the plants must be finger-pruned, as it is termed, which means simply to rub off with the finger those young shoots throughout the tree that are superfluous, and tend only to confusion.—(*See directions on this head.*)

Of Forcing Established Plants in the Cherry-House.

If all has gone well, the plants in this compartment will have begun to shed their blossom about the commencement of the present month, and to give warning, if I may use the expression, that they are now about to assume that appearance in which an ingenious cultivator feels the most lively interest, viz. fruitfulness, and which will be truly gratifying, providing the plants are managed with that degree of skill and care this critical period of vegetation requires. I have before observed, that this plant, being naturally hardy, never fully agrees with fire heat ; the cultivator must therefore be careful, both at this time and while the fruit is setting, and until the stoning of it be fairly over, (that may be about the latter end of the month,) to keep the temperature as steady as possible, and by all means moderate, not allowing it to exceed 45 or 50 degrees at any time, excepting from the effects of sunshine, should the day be fine, in which case, it may be allowed to rise four or five degrees more. Air must be given every day to as great an extent as the state of the weather, taken in connexion with this degree of temperature, will allow, and the application of the syringe or engine must be again resumed, as soon as the flowers have fallen, twice or thrice a-week, to refresh the young foliage, and prevent

the breeding of the red spider, that pest of all forcing-houses, from committing his mischievous depredations. Nor must less formidable enemies be forgotten, for the plants must be frequently looked over, in anticipation of attack from the grub or green fly, both of which prey on the young foliage, only the former is not to be seen, like the latter, wandering on the surface, but rolls himself snugly up in the hearts of the leaves, amongst a sort of down, which seems to serve him for a covering. The leaves, too, shrink and curl together when annoyed with this vermin, and this serves as a criterion by which to discover them, all which leaves, therefore, must be taken off and destroyed. The green fly must be destroyed by fumigation, in the same manner directed for the Cherry-House, (*which see.*)—The border at this time must be kept in that state I have already frequently had occasion to notice, viz. in a medium condition betwixt damp and drought, rather inclining to the latter than otherwise, which encourages the fruit to set more freely, and prevents much of it from damping off. Plants grown in pots or tubs will require more frequent supplies of water at the root than those growing in the border; yet it is to be remembered that, as it respects fruitfulness, an excess of moisture is fully as injurious to the one as the other, perhaps more so, as the former, being confined in the roots, grows much less vigorous and

strong than the other, and are consequently less able to sustain improper treatment of this kind. With respect to what is necessary to be done in the way of pruning, little need be said, as plants supposed worthy the trouble of forcing must necessarily be understood to be of age sufficient to bear a full crop of fruit, and, of course, to grow little to wood, being kept from pushing freely from the quantity of fruit they have to sustain. It sometimes happens, however, that the plants throw out a few water shoots here and there; these must, in all cases, be taken away, as must all the breast-wood that not unfrequently rises amongst the spurs, leaving, in short, no shoot whatever, unless with a view to the future extension of the tree, to improve its appearance, or to supply a vacancy, where such is occasioned by the cutting out of diseased wood.

Of the Newly Planted Cherry-House.

Before entering on the consideration of this subject, I would request the reader to observe, that, to supersede the necessity of repeating what would be of no use, the following observations, so far as respects the admission of air, syringing, watering, &c. are to be understood as applying in a general way to a period of two months, or thereabouts, viz. from the beginning of March to the latter end of April or beginning of May, at which time the ma-

nagement of this compartment and that of the preceding becomes the same. Presuming that the plants have been duly attended to the two last months, the first thing to which I would now direct the reader's attention is the pruning, this being omitted in January, because it is better to prune when the buds are pretty much swelled than at any time previous. In pruning bearing trees, indeed, to fill a given space, there are two things mainly to be kept in view, namely, to have this space filled as soon as possible, and in a scientific and proper manner. If, therefore, the plants are young, and there are a quantity of lateral shoots wanted to give them the fulness wished for, the pruner must cut over the last year's wood to within as many buds of the bottom as he sees necessary for this purpose; keeping in view, that too much lateral wood, as it affords greater facilities, is preferable in all cases to too little. This principle of pruning, making suitable allowance for the age of the trees, applies equally to trees planted in the border as standard, or to such as are trained to the back trellis; only the latter ought always to be cut above a bud issuing outside the branch, whereas the former may be cut above one either in front or back of the branch with the same propriety. Such is the treatment of plants that have yet, in a greater or less degree, to fill the space allotted them. Those which have been two or more years trained

for this purpose (if the house consists of such) will, or at least ought to have a sufficient quantity of wood with which to fill the intended space, at the regular distance, (that is, six or eight inches,) without being cut over, and require nothing further—I mean with respect to pruning during the growing season—than to have the water shoots taken away, if they produce any, together with what breast-wood may, from time to time, rise amongst the spurs.

It is seldom that trees of this age make as much wood the first year as to make training necessary ; but headed down plants, if healthy, always do. The cultivator must, therefore, be mindful, if such be planted against the back trellis, to lay in the young shoots regularly as they grow, using pieces of fresh matting, and allowing sufficient space in the ties. With respect to the condition in which the border should be kept during this and the following months, I can say little that has not been advanced already. A medium betwixt damp and drought is what should be aimed at throughout ; but this will require that the state of the roots, as well as the advance of the season, be taken into consideration, and less or more water given accordingly—less, of course, while the roots have made small progress and the weather is chill, but more as the weather becomes mild and the roots get better established ; never giving less at any time than is required to moisten the soil to the

deepest place d roots and fibres ; of which to satisfy one's self, it were advisable that the cultivator should now and then try the border to the depth of a few inches, either with the hand or other means, as may be thought proper. Air must be given very freely every day, from sunrise to sunset, except in times of heavy rain, when the house must be shut up, lest the border should get too damp ; and care must be taken to exercise the syringe, or engine, pretty freely, once a-week or so, during this month, and twice or thrice a-week in April, if the weather be fine, with a view to destroy the red spider, should it make its appearance ; and also on account of the infant foliage, which syringing refreshes and keeps clean, at the same time causes it to push more freely. But this is not enough : strict attention must be paid to the young shoots as the season advances, in the probability that the grub or green fly may attack them ; both of which are pernicious vermin, and must be promptly destroyed—the former by picking off the leaves in which it has taken refuge, and that may be known, as formerly observed, by being shrunk and curled together—the latter by fumigation, in the manner directed for the Cherry-House, (*which see.*)

THE PINERY.

Of the Nursing and Succession Pits.

If every thing has gone on prosperously, the plants in this compartment will by this time (the beginning of the month) have begun to take with the fresh soil into which they were put about a fortnight ago, and to show corresponding signs of a fresh vegetation—not very apparent, indeed, but such as may be expected from the yet feeble and unformed state of the roots. Under these circumstances, there is perhaps no particular which demands more correct practice this month than the giving of water at the root ; though I must apprise the reader that a general rule on the subject is the only one that can be given him, which requires, of course, that a considerable degree of judgment, independent of instructions, be exercised. To avoid extremes of damp or drought is the substance of this rule, and is undoubtedly the perfection of watering ; but then, this presupposes that the state of the weather, the quality of the mould, and the condition of the roots, be all along taken into consideration : The weather—because, in continued dull weather, a much less quantity of water will suffice to give the soil what moisture is necessary, than if the weather be warm and sunny ; the quality of the mould—because soil of this kind retains damp

much longer than that which is light and free ; and, lastly, the condition of the roots—because, while the roots, having made little progress, as I formerly observed, must imbibe a comparatively small quantity of water, to what may be supposed adequate to sustain them afterwards when vigorous and more fully established.

If these few hints be correctly understood and acted upon, the cultivator, I would hope, will not feel much at a loss to what extent watering may be practised with discretion. Yet, that nothing may be omitted which might be serviceable, I shall subjoin another method of ascertaining whether it is proper to withhold water, or to give it ; and that is, to pour on a small quantity of water in the first place, and observe if the mould absorbs it quickly, or allows it to remain some time on the surface. If quickly, there is no lack of moisture, but if otherwise, there always is, and less or more water must be given accordingly. So much for this article of practical treatment. There remain only the three following—viz. the regulation of the temperature, admission of air, and steaming, (which last is impracticable if the bottom heat be maintained by dung,) to be attended to besides ; neither of which, however, requires at all to be varied, but each must be gone on with precisely as directed for January and February, the two preceding months, to which, therefore, I refer the reader.

The Fruiting Compartment.

Presuming the cultivator has had the satisfaction hitherto of seeing his labours attended with full success, I would enter on the consideration of the duties of the present month by first observing a practice which, to a certain extent, prevails among pine growers; but which, nevertheless, so far as I am able to judge, is very far from being judicious. The practice to which I allude has its foundation in the idea that fruiting plants, if not forced by extraordinary means, (if I may use the expression,) may not start into fruit this month, as they ought to do, but continue to grow on, and which, to prevent such cultivators, either deprive the plants of water at the root, till the fruit begins to make its appearance, or force them to show fruit by suddenly raising the temperature to a much greater height than usual; and keeping it at this rate till they have made sure work, as they term it. Either of these methods will certainly make the plants start into fruit; but what kind of fruit will a plant thus treated ever produce? Assuredly not such as will give satisfaction, but a weak imperfect embryo, diminutive now, and, when full formed, of very moderate size indeed; less by a number of pipes than it otherwise would have been had the plants been allowed to start into fruit naturally, and of their own accord. Wherefore, I would advise not

only to give as much water as will keep the mould in a moderately moist state, or betwixt damp and drought, as formerly directed, and afford the plants the share of nourishment they have hitherto been accustomed to receive ; but also to continue the temperature at 65 degrees morning and evening, so long at least as the fruit has not fairly made its appearance, increasing it gradually after this, however, to 70 or 72, the better to encourage the swelling of the fruit.

Air must also be given, generally speaking, with as much caution as last month, and precisely on the same principle ; that is, to as great an extent every day as the state of the weather, taken in connexion with the maintaining of the temperature, will admit, which involving, as I formerly observed, the impracticability of giving air without the temperature having first been raised a few degrees higher than the fire heat medium, the cultivator must either have recourse to a small fire in the morning for this purpose, or trust to the action of the sun on the glass, as he sees meet.

The only thing farther to be attended to is the steaming of the plants every evening, with a view to refresh their foliage, of which I should have said nothing particular, but that it has been supposed that the use of the syringe is preferable to steaming during this month, on account of its being better calculated to keep the plants clean. Cleanliness,

no doubt, is of very great importance, either in the culture of pines or other plants ; but it should be considered, whether cleanliness, resulting from this means, does not, in this case, do more harm than good. I should think it does, because it is not only impracticable to use the syringe so gently, but a considerable quantity of water must lodge in the hearts of the plants ; and it is seldom that the heat of the sun is so powerful at this time of the year as to exhale the wet which thus lodges in due time. It, consequently, becomes fetid and impure in a short time from the heat of the house ; and, so far from being of advantage, is detrimental both to the foliage and forthcoming fruit—particularly the latter, which, thus surrounded by corruption, is nipt in the bud, as it were, and will never give the cultivator the satisfaction he anticipates. For these reasons, I conceive steaming should be practised till the fruit is fairly formed, and syringing afterwards, not so much with a view to the good of the foliage, for this is but a secondary object, as to the benefit of the fruit, which, by being moderately moistened twice or thrice a-week, swells a good deal more freely. I may just observe, the syringe should be exercised in the evening a short while after the house has been shut up for the day, and that the water used should be soft, and of the same temperature as that of the house.—(*See APRIL.*)

OF FORCING CUCUMBERS AND MELONS.

Presuming that the young melon plants, noticed in February, are by this time, the beginning of the month, in a sufficiently forward state to be finally transplanted, I shall here speak, in as concise a way as possible, of what constitutes the difference, with regard to practical treatment, betwixt these and cucumbers of the same age, already taken into consideration.

This difference arises, in my opinion, chiefly from two causes—namely, from the melon being a native of a warmer climate than the cucumber, (at least, that kind of cucumber which is generally cultivated in this country,) and of a nature considerably less succulent; hence it requires more heat and less moisture. The heat at which melons are allowed to grow most successfully is from 70 to 72 degrees; when, therefore, the young plants have been transplanted in the manner directed for Cucumbers, (*which see*), the cultivator must be attentive to keep the temperature as near this height, morning and evening, as possible, and admit fresh air at all favourable opportunities during the day at this time, even though the temperature should be reduced somewhat lower by it than the morning and evening standard, above stated; because the want of air tends greatly to weaken the

plants, and no melon, it is well known, that is not stubby grown ever fruits well. Water at the root should be given very sparingly at this period, in whatever way the plants are cultivated ; but more so, particularly, if the hot-bed practice be followed, the bottom heat being, in this case, of a moist nature, and nearly adequate of itself to afford the plants the degree of nourishment they require.

There is nothing, indeed, in the whole culture of melons that is so decidedly pernicious as an excess of moisture at the root, nor any thing, perhaps, in which an inexperienced gardener is more apt to fall into a mistake, though it is not possible to lay down a rule by which to determine how often water may be given with propriety, farther than by examining the mould now and then, which should be kept in a state rather approaching to drought than otherwise, at least for the first twelve or fourteen days after the plants have been put into the hills. At the end of this time, if all has gone well, the roots may be presumed to have made considerable progress ; and the degree of moisture may, therefore, be somewhat increased without danger, so that excess be avoided, observing not to pour the water close in around the necks of the plants at any time this month, but to apply it in the manner already directed for cucumbers of the same age, that is, from the extremities of the roots outwards, towards the sides of the hills. The heat and moisture

thus regulated, the management of the plants in other respects is comparatively easy, and is so nearly alike to that of cucumbers as to render a detailed account of it in this place altogether unnecessary. The cultivator will, therefore, please to glance over the several particulars relative to the cultivation of cucumbers last month that are here omitted, and proceed accordingly, bearing in mind that the more carefully even the minutest thing is done, the more likelihood is there of ultimate success.

I shall now proceed to observe shortly in what manner the cucumbers, treated of in the two preceding months, are to be gone on with throughout the present month, the labours of which may be regarded as possessing a charm unknown, perhaps, to that of any other period—I mean, the pleasing anticipation every ingenious gardener feels of being able, in a short time, to reap the first fruits of his industry. At what particular time, indeed, in the course of the month, the fruit may be fit for use, is what cannot be mentioned with certainty, but, in all probability, it will not pass the latter end of the second week, at least I have frequently cut sooner than this, and never later, when the weather was anywise favourable. In the prosecution of this subject last month, (*which see*,) it will be remembered that I left off at the time that an account had been given in what manner the primitive

runners, together with the laterals proceeding from them, were to be stopped, trained, &c. The first thing, therefore, to which I would direct the attention of the cultivator, as connected with the progress of the plants this month, is the state of the hills, through which it is most likely the roots will again be beginning to make their appearance. These (the hills) are not merely to be enlarged, as directed in March, but the beds or pits, if such are in use, must now wholly be covered to the full depth of soil required for the season, which soil must be laid on in a sloping direction, corresponding, as much as possible, with that of the glass; and, at the same time, in favourable weather, if there is an opportunity, observing, before adding the fresh soil, to stir up the surface of the old, that both may unite; more particularly the surface of that with which the beds were first covered, as this will probably have become indurated a little from age. The admission of air, meanwhile, must be very carefully attended to; indeed, a regular circulation of air is now, perhaps, fully more necessary than formerly, inasmuch as the benefit resulting from it is more varied and extensive, being not only the best means by which the runners can be kept stubby, and their fertility secured, it being the most effectual method of swelling off the fruit to advantage, and improving its flavour, at the same time that it causes it to set more freely. Water at

the root will be required rather more frequently than in the course of last month, both on account of the increasing strength of the plants and the forthcoming fruit; but more must not be given at a time than suffices to keep the soil moderately moist, neither must it be so often repeated in dung hot-beds as in flued pits, but the distinction of heat which I had formerly occasion to notice, with reference to this particular, must be still scrupulously observed.—(*See FEBRUARY.*)

But, in addition to these general rules, which, I trust, are sufficiently intelligible to be useful, there is yet another circumstance connected with watering this month, of which it is proper the cultivator should be apprized, because, though it is an obvious thing, it may yet escape observation till the evil resulting from it becomes irremediable.

The circumstance to which I allude applies to M'Phail's system of forcing alone, and not to any other, and is owing to the peculiar construction of the pit which this kind of forcing requires, a distinct feature of which, it will be perceived, (*see Description*, p. 64,) is, that the soil lies close up to the flues all round. Now, in consequence of this, the soil, as may readily be imagined, for some distance inward from the flues, is apt to become more powerfully heated than is compatible with the safety of the roots of the plants; which to preserve under these circumstances, the cultivator must be mind-

ful that this part of the soil be more frequently watered than that which lies near the centre of the pit, though this distinction of watering is not of so much importance just now as towards the latter end of the month, when the roots may be supposed to enter the soil I am speaking of. With respect to the necessity of applying fresh linings this month, considered, I mean, with reference as well to the above mode of forcing as to the more ordinary practice of forcing in hot-beds, it were superfluous for me here to enlarge; all that need be said is, that, as the object in both cases is simply to keep up the top heat to the height required, (65 degrees,) so as great a proportion of fresh linings, duly fermented, must be applied when it is observed the temperature is beginning to fall below this in general, as may be thought adequate to produce the desired effect. I need only add, that steaming is still to be continued in flued pits, covering at night both pits and hot-beds; and that, if successional crops of fruit be wanted in this last mode of forcing, it will be proper to have the beds prepared about the latter end of this month, or beginning of April.—(*See APRIL.*)

APRIL.

Of the Newly Planted Vinery.

Presuming that, in the course of the three preceding months, the cultivator has been mindful to give the young plants in this compartment what little degree of attention they required, I shall now proceed to state very shortly in what manner I conceive they should be gone on with, from this time forward, to the season of winter pruning, (October,) making this preliminary observation, that the following remarks are to be understood as applying to plants meant to be fruited the third year, in preference to the second, which is allowed by the best growers to be rather premature to do the plants full justice. The first and most obvious leading feature, connected with the management of the plants at this period, being the swelling of the few buds directed to be left at bottom (*see JANUARY*) in as full and perfect a way as possible, I would observe, in the first place, that, with this view, and as very materially conducive to this end, the temperature ought to be increased, for the first three weeks or thereabouts, 12 or 15 degrees by fire heat. I know this is not a general practice, nor indeed is it necessary in the more genial climate of England in

general; but, amidst the bleak mountains of Scotland, where the atmosphere during this month is generally clouded, the air keen and searching, and the natural temperature of the house seldom exceeds, in the course of the night, 40 degrees, little can be done to good purpose without it. To render this increase serviceable, however, it must be remembered not to bring it on rapidly, but by gentle degrees, corresponding, as it were, with the progressive power of vegetation which takes place in the plants. Fresh air, in the meantime, is of much use, and must be given every day, according to the state of the weather and the necessity of increasing the temperature, as above stated; to which I may add, by way of particular direction, that when the young shoots have begun to spring, and for some time after while they are tender, care should be taken not to admit air too rapidly, lest the temperature falling suddenly, they should suffer an unfavourable check in their growth,—a thing which sometimes happens with young gardeners, and is the unavoidable consequence of all unnatural transitions from heat to cold. With respect to the quantity of water necessary to be given while the buds are in this infant state, a single observation, founded on the nature of the plants, may suffice—that is, simply to keep the border in a state possessing more of an excess of moisture than drought, with which, as I formerly observed, vines

do not so well agree; at least too great a degree of drought has a tendency to weaken the forthcoming shoots very much, and this certainly ought to be regarded as a grand deficiency in a species of forcing where vigorous wood forms an indispensable requisite to future usefulness. The only thing farther to be attended to at this time—I mean as contributing in some measure to soften and swell the buds—is the use of the syringe, which should be applied, forcibly, twice or thrice a-week, for the first fourteen days of the month or thereabouts, and occasionally afterwards, observing to prefer water of a soft quality, and which has been brought to the same temperature as that of the house.

Such is the manner in which, perhaps, the practical treatment should be conducted, to have the plants germinate to advantage; the subsequent management of them, up to the time specified, (which includes the whole of the growing season,) is, in a general point of view, varied only so far as the change in the season, taken in connexion with the progressive growth of the plants, makes necessary; of which, as there is nothing critical, I shall content myself with a short outline, beginning with the state in which the border should be kept. May, June, July, and part of August, may be considered as the period during which there is the most powerful vegetation, the border will therefore require not only more frequent, but also more

liberal supplies of water in the course of these months, to give the soil a sufficient degree of moisture, than will be needed in those that follow; of which water, it should be observed to give a fully greater proportion to the border outside, for the purpose of encouraging the roots of the plants to seek towards this direction, which they do readily under these circumstances, and but seldom under circumstances the reverse—that is, when the soil is kept too dry.

In addition to this, it may be of advantage to stir up the top surface of the border outside now and then, that it may admit the water more freely, and there should be nice attention paid, besides, to the state of the border underneath the arches, not so much with respect to water, though of this it must have its share, as to the settling of it, which is sometimes so considerable, as to leave the roots of the plants nearly bare; a condition in which they make small progress, and which must be remedied by the addition of fresh soil from time to time as occasion requires. In the meantime, and particularly throughout the four months above mentioned, abundance of fresh air must be admitted, even to the exposure of the plants night and day if the weather be very warm, which keeps the wood stubby, and prevents it from drawing weak and small like straws, as a judicious author observes, from which nothing can be expected afterwards but disap-

pointment and regret. The syringe or engine must also be more freely exercised during the growing season in general, more particularly in the course of the hot summer months, when a refreshing of this kind not only does much to keep the plants clean and healthy, but also goes far to prevent the breeding of insects, (such as the thrips or green fly,) with which the plants are sometimes annoyed.

The border thus kept, with a corresponding degree of attention paid to the admission of air and syringing, there remains little that may be regarded as important, except the summer pruning of the plants; the whole of which may be comprised under the three following heads, viz. the displacing of the least promising of the young shoots rising from the buds alluded to in the beginning of this article, with a view that the shoot left may receive a greater share of nourishment; the divesting the shoot of what laterals and tendrils appear; and the pinching off the top of it. The first of which must be done when the shoots have sprung two or three inches, and a proper choice can be made; the next as soon as the laterals and tendrils make their appearance; and the last when the shoot has grown to the length of eight or nine feet, of which the object is mainly to prevent the vines on the back trellis from being as little shaded as possible.

I need only add, that the shoot thus left should be trained in as it grows, tied with strands of fresh

matting, and a considerable space allowed in the ties.—(*See OCTOBER.*)

Of Forcing Established Plants in the Vinery.

If the labours of last month, with regard to this compartment, have been attended with the wished for success, the cultivator may anticipate, with considerable confidence, that the object for which he has been so long obliged to toil will eventually be satisfactorily accomplished, at least the plants will have set their fruit by this time, (the beginning of the month,) with proper management, and may be regarded, so far as there is any difficulty in forcing, quite out of danger. In this state of progress, it is easy to perceive that the chief end to which the greatest attention must be directed, now that the fruit is fairly formed, is the swelling of it to as much advantage as possible, which requiring the practical treatment to be somewhat varied in general from that of last month, I shall again resume each of the particulars separately, beginning with the state in which the border should be kept with respect to moisture, as perhaps the most important. To form a just estimate of the quantity of water the border will require at this period, it should be considered, that the roots have a great deal to do, in the support not only of the young shoots intended for future bearers, (and noticed last month,) but also of the mother plant it-

self, with its numerous bunches of fruit, which, though yet in embryo, comparatively speaking, require a considerable share of nourishment. Under these circumstances, therefore, it may not be too much to give the border a pretty good soaking once every three days, or thereabouts,—that is, inside the house; the border outside will require less, upon the whole, both on account of its being exposed, and the probability there is of the weather being somewhat chill; yet it must not be kept so dry, by any means, as some writers, by whom the nature of the vine has been misunderstood, have recommended, but at all times in a state partaking of a good deal more of moisture than drought, of which, by way of reminding the cultivator, (because it is of greater moment during the growing season,) that that part of the border inside, underneath which the flues passing from the furnace proceed, will require water oftener, to give the soil a proper degree of moisture, than is necessary for any other part of it. If it is wished to have the fruit come in early, the temperature should now be increased to stand 73 degrees, morning and evening, if not, it may be continued at 70 degrees, as directed last month, giving air, meanwhile, every day to as great an extent as the state of the weather, viewed in connexion with this degree of temperature, (which must not be lowered,) will admit; that is, less or more of course, observing,

moreover, always to give what air is necessary by degrees, as well as to take it away in like manner. The use of the syringe or engine must again be resumed at evening twice or thrice a-week, to refresh the plants, and it may help to prevent the breeding of the red spider; though I have never seen these vermin make their appearance at this time of the season, unless in vineries that were very much mismanaged indeed. The thrips and green fly, however, are likely enough to be troublesome; if they come on, they will be found preying on or about the extremities of the young shoots, and must be destroyed by fumigation, in the manner directed for the Cherry-House.—(*See p. 148.*)

Steaming may also be practised at intervals this month with good effect; besides which, a proper degree of attention must be paid to pruning, in divesting the plants from time to time of what laterals and tendrils appear on them, clearing them of water-shoots, (if there are any,) and, in particular, by timeously stopping again the bearing shoots, which is of more importance than either, observing to leave one joint of the wood, thus issuing since the original shoot was cut, in like manner as directed for the original shoot, and for the same purpose, viz. to draw the sap thither, and afford a greater share of nourishment to the fruit.

Such is the mode of treatment best adapted at this time to promote the growth of the fruit, with-

out doing injury to the vines. There is yet, however, an additional and very powerful auxiliary means by which to increase the swelling of the fruit, not at all practised, so far as I know, that I shall here make known to the cultivator, with the assurance, that if he chooses to make the experiment, his labour will not be in vain.

The operation to which I allude, however, is practicable only in that way of fruiting the plants which I have all along been considering; that is, on the young wood of the former year's growth, in contradiction to the practice of fruiting on spurs, which is allowed to be less scientific and useful. The matter is this—About the beginning of the month, I have always found that all wood of the age above mentioned, if it be vigorous and healthy, throws out clusters of roots, seven, eight, and sometimes nine in a cluster, immediately underneath each of the joints, excepting a few at the bottom, of which the appearance, when they first break, bears a striking resemblance to the apices of large white maggots. These roots thus produced, it is the practice of all cultivators, I believe, to let grow unmolested, and die of their own accord; but in this consists their mistake: for as it is the growth of these roots, under certain circumstances, that the fruit attains to a greater perfection in size, so they ought by no means be allowed to die, but encouraged from the beginning in the most effica-

cious way possible. With this view I have tried two methods, and as I found both answer the purpose equally well, it signifies little to which of them the preference is given, farther than as it suits the circumstances of the cultivator, to whom, if expense be an object, it will be proper to adopt the latter. They are as follows:—When the roots are observed to have sprung the eighth part of an inch, or thereabouts, a sufficient number of hyacinth glasses, of rather large size, is to be procured; of which one must be suspended either from the trellis or from the ~~pine~~ vine itself, immediately underneath each of the clusters above mentioned, and with its mouth close up to the vine. The glasses, thus fixed, are then to be covered with paper, to prevent the sun's rays from acting too powerfully upon the roots; after which they must be filled with water, of a soft quality, quite to the brim. As the roots begin to enter the water, it will be found that they absorb it very quickly. The cultivator must, therefore, be mindful to examine the glasses once or twice a-day, and keep them always full. The other method above referred to, is by hanging up flower-pots instead of glasses, in which to grow the roots. These must be filled loosely, and almost to the brim, with hazelly loam of a middling texture, and well enriched with sheep dung, thoroughly decomposed. The pots should be of the size commonly

called large 32, which are about four inches in diameter, and as much in depth. From the oblique position in which the vines are placed, it will be necessary, in order to have the soil come near enough the roots, to break or cut a piece out of the sides of the pots, sufficient to admit the vine, into which opening, of course, that part of the vine which is immediately below the roots must be laid. These pots must be watered both before and after the roots have entered the soil, and indeed so long as they are used, almost to saturation; but this necessarily presupposes that the aperture made in the pots be, in the first place, rendered water-tight, which may be easily done by applying a little well-wrought putty closely in around it. When the fruit begins to ripen, and the purpose for which the pots in this last method have been suspended has been answered, they may be turned to most excellent account in the way of raising young vines the year following, (*for which see OCTOBER, the season of winter pruning.*)

Of Forcing Established Plants in the Cherry-House.

In treating of the management of this compartment last month, I had occasion to notice the very considerable difficulty which attends the cul-

ture of these plants, from the time that the fruit is set till the stoning of it is over. It may not be amiss, therefore, for the encouragement of the cultivator, should he have had little experience, here to observe, that the treatment of them in future is comparatively simple, and scarcely to be regarded as liable to failure in success, unless from a culpable degree of carelessness in the performance of it. This being the case, I shall run over the several particulars, which form the labours of the present month, in as concise a way as possible, subjoining, at the same time, (because it would be superfluous to make a separate article of it in the months that follow,) an account of what little must be done up to the season of winter pruning, that is, October, to which the reader is referred from this period. As it is during this month, under ordinary circumstances of weather, that the fruit may be expected to arrive at maturity, so to swell it off to the best advantage, constitutes at once the honour and the leading object to which the efforts of the cultivator should now be directed. With this view, therefore, the temperature should be increased, by fire heat, to stand about 55 degrees, morning and evening, throughout the month, fresh air given, by degrees, and also taken away, every day, to as great an extent as the state of the weather will permit, and the border kept pretty damp, till the fruit begins to colour; rather dry

afterwards ; to which I may add, that, if the weather be fine and settled, it would improve the flavour of the fruit to admit a portion of air through the night as well as through the day, six or eight days previous to its being fully ripe. For the first fourteen or twenty days of the month, or till the fruit begins to colour, the syringe or engine must be forcibly exercised every evening, as formerly, for the purpose of encouraging the fruit to swell ; and at the same time extirpating the red spider, of which there is an absolute necessity at this period ; for, as the syringe cannot be applied in future till the fruit is taken down, on account of impairing its flavour, and as, if even a very few of these vermin are left alive, they will, during the short interval, produce thousands and tens of thousands, and it may injure the foliage to such a degree, as to cause it to drop off entirely, some instances of which I have myself seen. Under these circumstances, which are not at all uncommon, it is not any wonder that the means by which to destroy this pest of forcing-houses should have been so long a desideratum among gardeners, although it has not fallen to the lot of any, (writers at least,) I believe, to discover a remedy in which the foliage does not suffer nearly as much as from the vermin themselves, and which, to use a familiar observation, is making the cure as bad as the disease. I shall, therefore, present the reader with

an effectual, yet simple method, by which to get rid of this formidable enemy, without doing the leaves the least injury, applying for proof to experience, the touchstone in this case of truth. The matter is shortly this—At the time the syringe or engine is discontinued, or when the fruit begins to colour, the cultivator is to get a quantity of shag tobacco, with a few ounces of the spirit of camphor, with which it is to wet the tobacco thoroughly, using two ounces of camphor to a pound of tobacco. The tobacco thus prepared, the house must be fumigated towards evening, until the smoke becomes so dense, as that one person cannot see another at a little distance, using either the fumigating bellows for this purpose, or, what is better, a large flower-pot, with a hole cut in the side of it, close down to the bottom, and large enough to admit the tube of an ordinary-sized bellows. This done, lay a few burning chips of wood in the bottom of the pot; put in the tobacco immediately afterwards, and cover it close down with a damp cloth, which prevents the tobacco from burning too fast, and at the same time causes the smoke to rise in a greater quantity. Place the pot in the centre of the house, and exercise the bellows gently, until the fumigation is completed. The house smoked, the plants must be well scourged with the engine, which clears them of dead insects, and prevents the house from retain-

ing an unpleasant smell. Those plants that are cultivated in pots or tubs must be removed to the open air as soon as the fruit is taken down, turned now and then to the sun, and watered regularly throughout the summer months. Those growing in the border must also be exposed at this period, the earth kept moderately moist, and the use of the syringe resumed, forcibly, twice or thrice a-week for the first four months, or thereabouts, and occasionally afterwards, till the season of winter pruning, (*which see.*)

Of Forcing Established Plants in the Peach-House.

In resuming this subject, I will point out to the reader, in as concise a way as possible, what difference is to be observed this month, considered apart from the preceding; beginning, in the first place, with the state in which the border should be kept. The giving of water at this critical period of vegetation—I mean the stoning of the fruit—is an object of the last importance, and may be regarded as a sure foundation by which a satisfactory crop of fruit can afterwards be obtained, or by which the disagreeable consequence of lost labour can be avoided.

To do the plants full justice, therefore, the border should be kept in a state rather approaching to

drought than too much damp, until the stoning of the fruit be fairly over, at which time, the difficulty of the forcing being over, the plants require not only more frequent supplies of water at the root, but also in greater quantities at a time, keeping the border, as much as possible, in a state rather inclining to damp than drought, the better to encourage the growth of the trees, as well as to forward the swelling of the fruit.

The temperature, too, this month must be very carefully attended to, not allowing it to exceed 55 degrees, morning and evening, until the fruit is fairly stoned, admitting air, meanwhile, regularly each day to as great an extent as the state of the weather will permit, and so as not to allow the thermometer to rise higher than 60 or 65 degrees, from the effects of sunshine, should the day be fine.

The syringe or engine will also require to be more freely exercised towards the end of this month than the preceding, not only on account of destroying the red spider, that destructive insect, but, what is of as much importance, the refreshing of the plants themselves, which, at this time, have a great deal to do, both in nourishing the fruit and the young shoots which are intended for future bearers. Should the thrips or green fly make their appearance about this time, recourse must be had to fumigation, in the manner I have already

directed for the Cherry-House, (*see* p. 148,) though the smoke of the tobacco will be found powerful enough of itself to destroy them ; but, if accompanied by the red spider, it will be advisable to make use of both.

The partially thinning of the fruit, too, this month is a matter of very considerable use, providing the plants have set more of it than they are able to nourish or bring forth to perfection ; in which case, a few only of those must be displaced where they are too numerous, allowing the other to remain till the stoning of it be fairly over, and all danger of dropping be past, observing, moreover, the comparative strength and vigour of the trees, to thin most where wood is wanted ; otherwise nothing can be expected the year following but disappointment and regret. I need only add, that when the young shoots have grown to the length of three or four inches, they must be trained neatly in, tied with strands of finest matting, and allowed sufficient space in the ties.

Of Forcing Peaches and Nectarines, trained on Flued Walls.

Peaches and nectarines, trained on flued walls, require fully greater attention paid to them than plants of the same kind growing under glass ; the one here is defended from the cold, while the other

is exposed to the severity of the weather. Many shifts and experiments have been fallen upon this month, in defending the blossom, as well as the leaves and infant fruit, from being blasted by the effects of storm, some of which, as might be expected, have been found to answer the end for which they are intended. Woollen nets, or canvass covers, are best calculated for this purpose, and, where this kind of forcing is carried on, should always be had in readiness, hanging them up at the time that the flowers begin to open, and allowed to remain until the fruit is fairly set.

Early forcing is sometimes attempted in flued walls, though, in my opinion, it is very injudicious; because, when it is considered, the impracticability will at once be perceived of regulating the temperature to suit the increasing power of vegetation which takes place in the plants; and to have recourse to the flues for this purpose, the consequence would be obvious. The application of fire heat this month should never be resorted to, unless the weather be very severe, and it is presumed that both the flowers and infant fruit are in danger of being destroyed from the effects of cold. Many disastrous accidents have attended the forcing of nectarines and peaches trained on flued walls, and are wholly to be ascribed to the flues possessing an improper heat, which, being greater than the

plants are able to bear, are thereby scorched, so as neither to produce flower nor leaf any more.

To avoid such a censurable event as this, therefore, the heat in the flues, on feeling them with the hand, at no period should be greater than to excite a comfortable sensation, which will easily be distinguished from the effects of a violent heat. A more proper period for the use of the flues, in cold or damp seasons, is from the beginning of August, and until the leaves fall, when a slight degree of fire heat is altogether indispensable, both in ripening the fruit and the young shoots which are intended to produce fruit the following year. Trellises, formed of slight spars of wood, are well calculated to prevent the heat of the flues from acting too powerfully upon the plants, which being kept at a small distance from them, allows the air to pass between, and renders the heat less violent than if the plants were lying contiguous with the wall. Trellises of this kind, however, are not meant to be higher up the wall than the first course of the flue, because the heat in the second course will be mild enough, without having anything to fear from its influence. I need only farther observe, that as soon as the plants are out of blossom, and the fruit fairly set, they should now and then be well scourged with the engine, which not only refreshes the plants and keeps them clean, but, what is of as much importance, extirpates

the red spider, which, being fostered by the heat of the flues, is often very troublesome.—(*See AUGUST.*)

THE PINERY.

Of the Nursing and Succession Pits.

The management of the plants in these compartments this month is so nearly alike to that of the preceding, as to render detailed instructions at this time altogether unnecessary; yet, that nothing may be omitted that might be of use, I shall run over the several particulars taken into consideration last month in as short a way as possible. A fully greater quantity of water at the root will be necessary this month than the preceding, to give the plants that degree of nourishment they require; and to water with judgment embraces, of course, that both the state of the weather and the apparent vegetation on the plants be considered. Fresh air must both be given, and reduced by degrees as formerly—that is, to as great an extent each day as the state of the weather will permit, not allowing the thermometer to rise higher at any time in the course of the day than 65 degrees. Syringing slightly over the leaves should now and then be practised (I mean in compartments wrought by fire heat) in the evening, if the weather be fine; using

water for this purpose that is soft, and which has been brought to the same temperature as that of the pit before being used. Plants growing in a moist heat require no watering over head at this period; but as soon as the bottom heat begins to get less powerful than it ought to be, (which may be known from the general inclination of the top heat to fall below 60 degrees,) it must be renewed with dung of the best quality which can be obtained, and that has been duly fermented; for which see *JANUARY*, p. 39.

The Fruiting Compartment.

In treating on this subject last month, I had occasion to notice the very important particulars connected with the plants at the time they show their fruit; so, to proceed with the management of them this month, I shall endeavour to state very shortly what I consider best calculated to encourage the swelling of the fruit, and to invigorate the young plants which rise immediately from between the leaves, and which are intended either to be left for future usefulness, or to give to a neighbour, as may be thought proper.

The temperature of the house, morning and evening, is still to be continued at 70 or 72 degrees, admitting air regularly each day to as great an extent as the state of the weather will admit, and so

as not to allow the heat of the house to rise higher at any time from the effects of sunshine than 78 or 80 degrees ; otherwise the plants swell their fruit too quickly, and not by gentle degrees, as they ought. More frequent supplies of water at the root will also be necessary this month than any of the preceding, to give the plants that support which they require in sustaining both the fruit and the young plants that are reserved for the purpose above alluded to. Syringing over the leaves, too, must be regularly practised twice or thrice a-week, so long as the blossom has not fairly made its appearance ; but as soon as the flowers begin to expand, and until the petals are dropped off, no water should be given over head,—having recourse to steam only during this period, and syringing afterwards. The only thing farther to be observed this month, considered as beneficial to the swelling of the fruit, is the displacing of supernumerary suckers, which spring from the root, betwixt the leaves, and sometimes around the base of the fruit ; both the former and latter of which should be taken away as soon as they make their appearance, because they deprive the fruit of a considerable degree of nourishment, are generally ill-shaped, and in most cases start prematurely into fruit. Those arising from betwixt the leaves may all be allowed to grow, if it be wished to increase the stock ; if not, two of the strongest of them will be sufficient,

displacing those of an inferior size, either with the fingers or other means, as may be judged necessary.

Of Forcing Cucumbers and Melons.

In giving an account of the management of these plants last month, I had occasion to notice what constitutes the difference of practical treatment they require from each other, to have them succeed in such a way as to give satisfaction; so, to resume the treatment they ought to have this month, I shall endeavour to point out such rules as I conceive best calculated as conducive to the growth of the plants, as well as the swelling of the fruit. More frequent supplies of water at the root, both in dung hot-beds and flued pits, will be necessary this month than heretofore, to give the plants that degree of nourishment they require in supporting not only the additional shoots they have put forth, but also the fruit itself, which, on cucumbers, will be very numerous, providing the cultivator has had the satisfaction hitherto of seeing his labours attended with the wished for success. Melons, as I formerly observed, being of a nature less succulent than cucumbers, require less water; but, as the season advances, the plants get stronger and more fully established, and they have at once to give nourishment to the young

fruit they put forth, a little more water at the root will be necessary than was required to support them at any time previous.

With respect to the time of the day at which the water should be given, to be of most service to the plants, opinions are rather at variance. Some have affirmed it is best to water over head at this period, and in the afternoon, when the air is taken off for the day. This I conceive to be the best method either for cucumbers or melons, which are cultivated in flued pits, (the top heat being of a dry nature,) but as it respects those growing on dung hot-beds, watering in this way is a practice become established, more from custom than it is consistent with the nature of the plant. Hence cucumbers or melons grown by dung heat should never be watered over head, because the steam arising from the dung will afford the plants a sufficient degree of top moisture independent of any other.

When the plants stand in need of water at the root, it should be given from the spout of the watering-pot, and in the morning, a short while after the covers have been taken off for the day ; it being found the plants swell their fruit a good deal more freely by being watered at this period, than if done in the absence of the sun, and when no air can be given for the good of the plants, without starving them, the roots of which must, of necessity, be in a very cold and uncomfortable state during the night,

to give to the plants that genial degree of nutriment which is necessary in producing large and high-flavoured fruit. Fresh air must both be given and reduced by degrees as formerly, and to as great an extent every day as the state of the weather will admit, and so as not to allow the heat (in the pits or beds) to rise higher at any time from the effects of sunshine than six or eight degrees above their respective standards, otherwise the plants grow too weak, and become less fruitful than they ought to be. All that need be said in regard to pruning, is to keep the plants moderately thin of shoots, cutting or pinching off all such as cross each other, with part of those which have the least appearance of fruit, it being generally acknowledged, that neither melons nor cucumbers will ever be found to give satisfaction whose shoots are allowed to run into confusion. As the plants, however, are very apt to bleed, much pruning at a time should be very carefully guarded against, otherwise the plants, as well as the fruit, will be very much weakened by it. If any of the leaves should happen to get bruised, from the working of the sashes, they should be taken away, and the plants kept perfectly clean of weeds or other rubbish, which may be conveyed into the pits or beds by the wind or otherwise.

Should the thrips or green fly appear upon the plants at any time, recourse must be had to fumigation, but if they are trained on the earth, as they

ought to be, and have all along been kept in a creditable and workmanlike manner, these vermin will seldom attack them. The red spider, however, is likely enough to be troublesome, where the top heat is of a dry nature; if they make their appearance, no pains should be spared to have them destroyed, and which only can be done effectually by fumigation in the manner I have already directed for the Cherry-House, (*which see*, p. 148.)—When the young melons have grown to about half their size, they should be placed on pieces of glass or slate, for, if allowed to lie on the surface of the mould, they not only partake of an earthy flavour, but, on the approach of being ripe, are apt to fall into cracks from the humidity of the mould, and of course would be of little use. The impregnating the female flowers by the males, too, is an operation at this period of very considerable utility, both to the setting and swelling of the fruit, as well as the better security of the maturation and fertility of their seeds.

Cucumbers, no doubt, will both set and swell off their fruit to a size large enough, without the necessity of impregnation, though their seeds will be abortive. Melons, on the contrary, neither set their fruit so well at this early period of the season, nor does it swell off to such advantage as when the female flowers are impregnated by the males; the necessity of doing which will at once

appear obvious from the nature of the plants being of that class and order which produce both male and female flowers on the same plant, and which, by being pent up from the open air, where the effects of the wind, the labours of the bee or other insects from one flower to another, supersedes the necessity of the performance of it by the hand. Seeing the plants are therefore deprived of such natural means with which the female flowers are impregnated, we are obliged to have recourse to art, as the only substitute on which the hopes of well-matured seed and fruit depend.

The only way in which this work should be performed for the best, is to select the most promising melons as they appear, (those growing nearest to the stem of the plant are generally the best fruit,) and such cucumbers as are intended to be reserved for seed. Proceed thus:—Just at the time the female flowers are full blown, make choice of as many of the strongest of the male flowers, which are also full blown, as will impregnate the quantity of female flowers required. Cut or pinch off the male flower with a stalk long enough to get hold of it, then pick off the petals or flower leaves, and by taking hold of the stalk between the finger and thumb, apply the anthers to the stigma of the female flower, give it a quick turn, and the impregnation is completed. I need only further observe, that the practical treatment of successional

beds of cucumbers and melons, taken notice of last month, are, with slight allowance for the advance of the season, to be conducted as already set forth; and if it be wished to have some of the more hardy kinds of cucumbers cultivated in the open ground, or on ridges of dung made for the purpose, the seeds should be sown in pots about the middle of the month, placed in the cucumber or melon beds now at work, or in flued pits, as may be thought proper.—(*See MAY.*)

MAY.

OF FORCING ESTABLISHED PLANTS IN THE VINERY.

The observations on this subject last month in regard to pruning, training the young shoots, watering the border, syringing over the leaves, and the temperature and airing of the house, are so nearly alike to the present month, as to render detailed instructions at this time unnecessary. Suffice it then to observe, that the quantity of water at the root will have to be somewhat increased, to give the plants the necessary degree of nourishment they require in strengthening and invigorating the young shoots which are intended to bear fruit the following year, as well as to forward the swelling of it which is now on the plants. The

temperature and airing of the house must also be very carefully regulated, the plants pruned of superfluous growth, and well scourged with the engine in the evening, three or four times a-week, according as the day has been sunny or otherwise. Thinning the fruit, too, this month, is a matter of very considerable utility, and if it is done with that degree of judgment which is necessary, very handsome bunches and full-swelled berries can be obtained. The proper time at which this work should be performed for the best, is when the berries have grown to the size of marrowfat peas, for, if done much sooner than this, a just idea cannot be formed of the proper number of them to be taken away, and if allowed to grow to a greater size, it deprives those that should be left of a considerable degree of nourishment, which they otherwise would have if the clusters had been thinned at the nick of time.

As to the quantity of berries proper to be taken away, a general rule is the only one that can be given for it, and which embraces, of course, that both the nature of the vines and the size to which it is expected the berries shall grow be considered ; —the vines, because it is the nature of some vines to produce their fruit more loosely in the bunch than others, and of course require less thinning ; —the berries, because those kinds of plants which yield their berries closely in the bunch, and grow

to a large size, must be thinned considerably to allow them room to swell. Those which grow loosely should have their shoulders suspended either to the trellis or the vine itself, with strands of fresh matting; all the seedless berries cut out, with as many of the least promising of the other as may be judged necessary, to allow the berries that are left to swell off to full maturity without being crowded.

Those that grow closely in the bunch, and have no shoulders, must be thinned the same way, otherwise the clusters will become so hard as to prevent the air from circulating through them, thereby get moulded, and are unfit for use. Cutting off the bunches, to a certain extent, should also be practised on such plants as are delicate, and that are pushing weak shoots, it being the only remedy of securing a satisfactory crop of fruit the year following, or by which the health and vigour of the plants can be prolonged. I need only add, that whilst working in vineries at any time, care should be taken not to allow the hair of the head to touch the fruit, nor even the hand, after it is thinned, because, by rubbing off that sort of dewy substance which covers the berries very much retards their swelling, independent of the unsightly appearance that it gives the fruit.

Of Forcing Established Plants in the Peach-House.

The directions given for the practical treatment of these plants last month are to be continued until the fruit is fairly stoned, when the temperature of the house, morning and evening, must be gradually increased by fire heat to 60 or 62 degrees, a fully greater quantity of water given at the root, the fruit finely thinned, the syringe or engine more freely exercised, (in the evening,) all the superfluous shoots taken away, and those which are left for future bearers trained in neatly as they grow. Fresh air must also be given, and reduced by little and little at a time, to as great an extent each day as not to allow the mercury in the thermometer to rise higher than 70 or 72 degrees, the better to strengthen the young shoots, and encourage the swelling of the fruit by gentle degrees as it ought. When the nights become mild enough to keep up the temperature of the house to 60 degrees, the application of fire heat is no longer necessary, unless with a view to keep off that inveterate disease the mildew, a slight fire now and then in continued dull weather is indispensably necessary.—(See *JUNE.*)

*Of Disbudding Nectarines and Peaches trained
on Flued Walls, or otherwise.*

In disbudding nectarines and peaches, which produce their fruit almost entirely on the shoots of last year's growth, two things are especially to be considered. In a tree of the above kind, trained on the principle pointed out in OCTOBER, and which is to produce fruit for the first time, a material difference (in the work of disbudding) must be observed betwixt the bearing shoots of such lying between the leaders and the leaders themselves. In the former, a sufficient number of wood buds must always be left as near the bottom as possible, in order to supply the places of the bearing shoots afterwards, which, by being fruited, will get bare at the bottom. All foreright buds on such, excepting the one on the extremity of the shoot, which must be left to continue it, (if necessary,) and, at the same time, to draw nourishment to the fruit, should be taken away. With respect to the number of lateral buds proper to be left on the bearing shoots, it is not easy to say ; but, in my opinion, if there is sufficient space, rather more should be allowed to remain than is necessary to be preserved afterwards ; as, in the winter pruning, a better choice can thereby be made of the most convenient with which to form the tree in an elegant manner. In the latter,

(that is, the leaders,) all foreright shoots must be displaced, excepting the one at the upper extremity of the branch, which must be left to continue it. Little need be said respecting the number of laterals proper to be left in this part of the tree, as this must be determined by the space which they are to occupy ; but, generally speaking, when the laterals have grown to a considerable length from the parent stem, and are laid into the wall, five or six inches (according to the strength of the tree) will be little enough to admit the young shoots proceeding from these laterals afterwards to be laid into the wall without being too much crowded. All fruit buds on the leaders (if any appear) should also be displaced, as the allowing this part of the tree to produce fruit tends considerably to weaken the lateral shoots, and prevents the shoot at the upper extremity of the leader from growing with that vigour which it will require to cause it push good laterals the succeeding year. Nothing further need be observed of the treatment of these trees while in training, as the above observations include every thing necessary to be done with them, until they have filled the spaces allotted for them. In disbudding full-grown trees, the chief thing to be kept in view is to obtain a regular succession of young bearing wood in every part of the tree. The lateral wood buds must, therefore, be regulated according to this necessity, observing to

retain those best situated, and just as many as can be conveniently laid into the wall without being too much crowded. I might here take notice of the different situations of the wood buds on the above trees, which are frequently to be found arising in the centre of two fruit buds, and sometimes by the side of a single fruit bud. Care must, therefore, be taken in displacing wood buds thus situated, not to displace the fruit buds at the same time. The most proper time of displacing wood buds on the above kinds of trees is immediately after the fruit is set. They should not, however, be allowed to remain longer in displacing, as, after this time, the bark of the tree is liable to be ruffled, which, in all kinds of stone fruits, is apt to produce canker. The fruit, too, by leaving them long on, is thereby deprived of part of its nourishment, and the same thing may be observed of the young shoots intended to be left, which undoubtedly sustain an injury from the same cause. With respect to thinning the fruit on the above kinds of trees, a very few observations will suffice. This work should be partly performed about the present time, and partly after the stoning is over. By stoning is meant the formation of the stone and kernel in the heart of the fruit; the former of which, after it becomes of a hard consistency, may be considered as a proof that the fruit is out of danger. In favourable seasons, this kind of trees, if healthy, and growing in good soil,

generally produce a greater quantity of fruit than they should be allowed to bring forward to maturity. In thinning them at the present time, those parts of the tree only should be gone over on which the fruit is very thickly set, reserving a considerable number more than should be left afterwards, as it may be presumed that several will fall off in the time of stoning. If the fruit has set thickly in all parts of the tree, of course every part must be thinned off in the above manner, leaving the most promising, which may be known from the others by being of a brownish colour, larger, and more fully formed.—(For further directions respecting the thinning of the fruit, see on the *Thinning of Peaches and Nectarines growing under Glass*, p. 209.)

THE PINERY.

Of the Nursing and Succession Pits.

If the practical treatment of the plants in these two compartments have been duly attended to the four preceding months, they will now be vegetating very fast, and must be shifted into pots of a larger size, to allow the roots sufficient space to run in. The pots proper to be made use of for succession plants at this shifting are from nine to ten inches in diameter, and twelve inches deep, made perfectly clean inside, and drained to the depth of two

inches, with small pieces of hard dry turf. Nursing plants require pots six inches diameter, and eight or nine inches deep, which also are well cleaned, and drained as above.

Before turning the succession plants out of their pots, the leaves should be tied up, the better to facilitate the plants being replunged after potting, as well as the greater security of the leaves against being broken or bruised. The pots ready, turn out the plants carefully, loosen the balls a little with a sharp-pointed stick, and if any of the roots have become matted, single them out. Place the plants in the centre of the pots, the top surface of the balls an inch and an half lower than the margin, and twist off a few of the bottom leaves. This done, fill in the prepared compost to within half an inch of the brims of the pots, and observe to work it well down with a small piece of wood made for the purpose, that no vacancies may be left between the balls and the sides of the pots. Keep the mould from getting in betwixt the leaves, if possible, and let the surface be made perfectly level. The potting finished, it will next be necessary to attend to the state of the pits or beds, with respect to the efficiency of the bottom heat, which by this time will be beginning to decline a little, and must be renewed. As a mild growing heat is what is wished for, as much of the old bark or leaves must be disused, that the quantity of fresh

materials (duly fermented) added, on the old being taken out, be adequate to maintain a sufficient degree of bottom heat until the latter end of July or beginning of August.

A bottom heat, kept up by horse dung substituted in the room of tan-bark or tree leaves, must also be renewed at this time, (the beginning of the month.) I mean the dung underneath the hurdle must be wholly taken out, and its place supplied with fresh dung that has been duly fermented, (*for which see JANUARY.*)—The pits or beds being in readiness, the plants must be brought from the potting-house with as little delay as possible, observing to plunge the pots quite up to their rims, as well as to keep them perfectly level at top.

The tallest of the plants should be placed towards the back part of the pits or beds, and those of an inferior size in front, allowing nineteen inches or thereabouts for succession, and ten or twelve for nursing plants, (I mean from centre to centre of the plants,) distance in line, observing to remove the ties of the succession plants and adjust their leaves.* If the mould were moist enough with which the plants were potted, they will require no water until the heat begins to rise to the pots ; but

* Pines that are newly potted should be kept shaded for a few days ; observing to prefer mats for this purpose in the first place, and nets afterwards, that the plants may be exposed to the light and sun's rays by degrees.

as soon as this takes place, and it is presumed the roots are again beginning to vegetate, a full watering at the root must be given, repeating it afterwards as the season advances, and the growth of the plants make necessary. Syringing slightly over the leaves, too, should now and then be practised (in the evening) in compartments wrought by fire heat, the better to encourage the growth of the plants, as well as to keep them perfectly clean of dust. The temperature of the pits or beds, morning and evening, and the admission of air, are to be conducted as already noticed in the preceding months ; keeping in mind to give the air by degrees, as well as to take it away in like manner.

The Fruiting Compartment.

The first thing necessary to be attended to in this compartment the present month is the bottom heat, which by this time will be beginning to get less powerful than it ought to be, and must be renewed, the better to encourage the swelling of the fruit, and to invigorate the young plants that rise immediately from between the leaves. The quantity of tan-bark or tree leaves which is proper to be added at this period, must be in proportion to the decay of heat that is now in the beds, and to that of raising a sufficient degree of warmth to last until the fruit is ripe and is ready to be taken off ; referring the reader to FEBRUARY for full direc-

tions for mixing the new materials with the old. In preparing the plants, previous to the pots being again replunged, the surface of the mould should be stirred up, taken out to the depth of the surface roots, the decayed leaves at bottom taken away, and fresh compost filled in to within an inch of the brims of the pots, (or slips of tin or wood spoken of in February,) will cause the plants push surface roots, which will keep them more firm and steady in their pots. Also, before the plants are let out of hand, they should have the decayed points of their leaves cut away, if there be any, the largest of the fruit supported by small rods of wood, and the pots replunged to the brims as before. The plants will require very little water for the first three or four days ; but as soon as the heat begins to rise to the pots, it must be given both at root and over the leaves, as noticed last month ; that is, to keep the mould in the pots rather approaching to damp than drought, until the fruit begins to colour, and that to have the water that is used, both for the roots and over the leaves, to possess a tolerable degree of warmth. The temperature of the house, morning and evening, must still be kept at 70 or 72 degrees, and fresh air given regularly each day, to as great an extent as the state of the weather will admit ; not allowing the heat of the house to rise higher than 80 or 82 degrees from the effects of sunshine, should the day be fine.

*Of Forcing Melons cultivated on Dung Hot-Beds
or Flued Pits.*

If the labours of the preceding months have been attended with good success, the fruit will now be advancing fast towards maturity, and to have it in the highest perfection possible, it is presumed the following remarks will suffice :—

First, then, water at the root should be withheld by degrees, and, on the approach of the fruit being fully ripe, no more should be given than merely to keep the plants healthy and in a growing state. They should also be pruned of all superfluous shoots, divested of decayed leaves, and those taken away which overhang the fruit, otherwise its flavour will be very much impaired. A free admission of air, too, is indispensably necessary at this period, both for giving flavour to the fruit, which is almost ripe, as well as to encourage the swelling of it that is half grown past this, and nearly full swelled. The fruit should be cut from the plant as soon as it begins to smell ripe, and with two or three inches of the stalk appending to it, placed either in the fruit-room or the bed itself, to acquire sufficient colour. If placed in the bed, it should have a piece of glass or slate put between it and the mould, otherwise the fruit will partake of an earthy flavour, and become as insipid as if it were allowed to re-

main too long on the plant. Melons are a kind of fruit that, if kept long after ripe, lose much of that luscious taste so much admired, and, therefore, to have them in full perfection, should be used on the second or third day after being cut. Those melons which are best formed should have their seeds clean washed out, reserving only such as sink quickly to the bottom in clean water; it being generally acknowledged, that, the larger the seeds are, and the fuller they are swelled; they always produce the strongest and most fruitful plants. As soon as they are made perfectly clean, they should be spread out on a piece of white paper, and exposed to the heat of the sun for six or eight days, to prevent the seeds from moulding afterwards. Melon seeds that are kept perfectly free from damp will grow, and become fruitful plants even at a very great age, but they seldom vegetate so fast as those which are only three or four years old. Seeds that are sown the following spring (nine months old) vegetate so fast, as to cause the plants to be less fertile than they ought to be; but if they are worn in the pocket (near the body) three or four months previous, or otherwise pretty well dried, perfectly matures them, and the plants will become as fruitful as those which are grown from seeds of a greater age.

The only thing further to be observed this month is the pruning of the plants, with a view to obtain a second crop, which is often superior to the first,

providing the plants are healthy, and are managed with that degree of judgment which is necessary.

This pruning, it is to be observed, is not to be delayed till the fruit is all cut, (though recommended by some,) but must be done from time to time as the fruit is taken from the plants, otherwise they will be very much weakened from the bleeding of the shoots. It is true, melons that are pruned all at once, (I mean when the fruit is wholly taken off,) and whose shoots are not very strong and healthy, seldom bleed much after the knife ; but even such thrive and grow much stronger when they are pruned by little and little at a time.

The number of joints proper to be left must be determined according to the strength of the shoots, which, if strong and healthy, four or five, and if weak, two or three joints will be sufficient ; observing always to cut at an inch or so above a joint that is most likely to push freely. As soon as the plants are thus pruned, the surface of the mould should be stirred up, and fresh soil added to the depth of two inches, will cause the plants push surface radicals, which greatly encourage their growth. They will also require a greater proportion of water at the root at this period ; and if the plants are cultivated in M'Phail's pits or on dung hot-beds, it will be advisable to have the old linings taken away, and their places supplied with fresh

dung (or grass) that has been duly fermented, as before observed. The treatment of the plants after this, in regard to pruning, training the young shoots, watering, &c., differ nothing from what has been already set forth, except that they will require to be shaded from the heat of the sun six or eight days previous to the shoots being again in active vegetation.

JUNE.

OF FORCING ESTABLISHED PLANTS IN THE VINERY.

The thinning of the fruit being fully spoken of last month, together with the practical treatment which the plants require, so the great object to be kept in view this month is the swelling of the fruit to the best advantage possible.

To succeed in this, the plants will require to be more freely watered at the root than any of the preceding months; but, on the approach of the fruit being ripe, the water must be withheld by degrees, otherwise its flavour will be very much impaired. Syringing over the leaves is also well calculated to encourage the swelling of the fruit; and, indeed, if this particular be omitted for many days, (now as the berries are swelling off,) the fruit will

not swell off to such advantage as to give to the cultivator the satisfaction he anticipates. This syringing, however, it is to be observed, must be discontinued as soon as the fruit begins to get ripe, because too much damp at this time will inevitably damp it to such a degree, as to cause great part of the berries to rot and fall away.

The admission of air, too, while it secures the fruit from damping off, must be scrupulously well attended to, both for the purpose of encouraging the berries to swell, and to prevent them afterwards on being ripe from falling into cracks, occasioned by too great a heat of the sun. Thus circumstanced, the only thing further to be observed this month is the pruning of the plants of all superfluous growth, which before, and particularly when the fruit begins to change its colour, must be taken away, (*see the preceding month*,) otherwise its flavour will be very much deteriorated.

Of Forcing Established Plants in the Peach-House.

The fruit in this compartment will now be fairly stoned, (the beginning of the month,) and to swell it off to the best advantage constitutes the grand object for which the cultivator has been so long obliged to toil.

The fruit, if not finely thinned last month, must now be done without further delay, the plants pruned of superfluous growth, and those which have been left for future bearers trained in neatly as they grow. This, with a corresponding degree of attention paid to the admission of air, watering the border, and syringing over the leaves, (*see the preceding month,*) must be continued to within six or eight days of the fruit being fully ripe ; at which time, both the water at root and over the leaves must be withheld by degrees, and previous to the fruit being taken down, should be discontinued altogether, otherwise the flavour of it will be very much injured.

Picking off the leaves that shade the fruit must also be practised to a certain extent, because plants of this kind, which are confined under glass, and whose fruit do not receive the benefit of the sun's rays, are neither pleasing to the sight nor agreeable to the palate. I do not mean, however, that these leaves are to be entirely torn away, but merely the leaves themselves, leaving part of the stalks behind, that the young buds may receive as little injury as possible. An extra quantity of air, too, while the fruit is swelling off, is of very considerable utility, and, indeed, if this particular be not properly attended to, the fruit will neither be so large, nor will it possess that degree of richness and flavour which can easily be obtained when the

sashes are kept down night and day previous to the fruit getting fully ripe. This is not a common practice of airing peach-houses at the time the fruit is swelling off, but I have always found the night air to swell it off to a much greater size, and to possess a far superior flavour, to fruit of this kind shut up from the air. Should the red spider appear upon the plants before the syringing is discontinued, no pains should be spared to have them destroyed, (*for which see Cherry-House, p. 148 ;*) for if even a very few of these vermin be left alive, they will become so numerous by the time the fruit is all taken down, as to injure the leaves to such a degree that the greater part of them will fall away.

THE PINERY.

Of the Nursing and Succession Pits.

If the plants in these compartments were potted as directed last month, they will now be vegetating very fast, and to encourage this growth, the greatest attention will be necessary. First, then, the plants must be duly watered at the root and over the leaves, as noticed last month, and in giving air, (now as the sun is very hot,) particular attention must be paid, not to allow the mercury in the thermometer to rise higher at any time by

sun-heat than 68 or 70 degrees, otherwise the plants will grow so weak and slender, as to endanger them afterwards, from the very least improper management, of starting prematurely into fruit.

Plants growing by dung heat will, upon the whole, require less water at the root, (where the top heat is of a moist nature,) and if the weather be moist or hazy, syringing over the leaves would be improper. This, with proper attention paid to the efficiency of the bottom heat, (I mean the renewing of the dung underneath the hurdle,) embraces every important particular connected with the plants during the course of the present month.

The Fruiting Compartment.

If all has gone well, the fruit will now be swelling very fast, and to encourage it as much as possible is the only circumstance to which the attention of the cultivator should be directed. To succeed in this the plants should be watered over head, in the evening, twice or thrice a-week, and the flues, paths, &c., at other intervals, kept pretty well damp until the fruit begins to colour ; at which time the house must be kept perfectly free from damp, and, in order to have the fruit produced in the highest perfection possible, an extra quantity of air must be admitted into the house, even in the night, when

it is presumed the weather will be fine. These observations, however, apply strictly to plants whose fruit is in a forward state; but where a succession of fruit is wished for, and the fruit is newly shown past this, and in full flower, the practical treatment must be conducted as already set forth. Before the fruit gets fully ripe, and it is intended to have the maturation of it to come on by degrees, part of the plants must be removed into other forcing-houses of less temperature, or placed in the potting-house, or other conveniency under cover, as may be judged necessary to produce the desired effect.

Of Forcing late Melons.

If it be desirable to have ripe melons throughout the months of September and October, the pits or beds must be prepared (*see JANUARY for the performance of this work*) about the middle of the month, that the plants may be well established, and the fruit pretty well swelled, previous to the nights getting cold. Flued pits are best calculated for the prolongation of ripe melons; and where late fruit of this kind is very much thought of, the expense of erecting a pit or two for this purpose will be thought trifling. I do not mean to say, however, that these pits are to be entirely reserved for the production of late melons, but may be pre-

These plants were a fruit is er, the already e, and it t to come removed ture, or veniency y to pro-
vously used for forcing strawberries, pine apples, asparagus, early cucumbers, and melons, for which, from their construction, very early fruit can be obtained, without having much to fear from the severity of the weather.

It would far exceed the limits of this work were I again to repeat every little thing connected with the management of the plants, as the reader, by turning to the preceding months, will find an ample account of their culture, from the time the plants were first put into the hills, until the fruit was fully matured. In a general point of view, therefore, let the plants be duly watered at the root, carefully pruned of all superfluous growth, and fresh air given each day to as great an extent as the state of the weather will admit, which will cause the plants set their fruit much better, and prevent them from pushing weak and sterile shoots. This, with proper attention paid to the top heat, (70 degrees,) embraces every important particular to be attended to until the beginning of September, or thereabouts, when the nights are generally cold, and the fruit is swelling off, require the aid of the flues to keep up the top temperature, and the water at the root to be discontinued previous to the fruit being ripe.

JULY.

THE VINERY.

If due attention has been paid to the several particulars spoken of in the preceding months, part of the fruit will now be taken down, and to prevent those which are still on the plants from falling into cracks, or damping off, is the only circumstance to which the attention of the cultivator should be directed during the course of the present month. A free and regular circulation of air must be admitted into the house at all favourable opportunities during the day, because fruit of this kind, that is fully ripe, not only loses much of its flavour by being pent up from the air, but in sunshine, if the heat of the house be allowed to rise too suddenly, endangers the bursting of the fruit, independent of the injury which it does to the plants themselves. If the weather be moist or hazy at any time before the fruit is wholly taken down, and it is presumed the house is damper than it ought to be, a slight fire, in the evening, now and then, not only improves the flavour of the fruit, but dries up the superfluous moisture, and perfectly secures the berries from damping off. Should the wasps at any time begin to commit their de-

predations among the fruit, this may easily be prevented by hanging up gauze or thin canvass over the space commonly let down for the admission of air ; but to cover the bunches with silken paper, or the like, very much injures the flavour of the fruit, from the want of light and of the sun's rays. From the time the crop is all gathered, and until the shoots are fully matured, the plants must be pruned of all superfluous growth, the border kept moderately moist, and the syringe or engine freely exercised (in the evening) twice or thrice a-week, so long as the plants are in active vegetation, and occasionally afterwards until the leaves drop off.

The admission of air, meanwhile, must be very carefully regulated, (*see the preceding months,*) and the young shoots spoken of in March, intended for bearing shoots the following year, should be topped about the end of this month, at three or four joints beyond where it is presumed they will be cut down in the winter pruning, (*see OCTOBER,*) allows the plants on the back trellis a greater share of light and of the sun's rays. These young shoots will push again, probably twice, after their tops are first taken off ; but to prevent this growth (which is of no use) from exhausting the plants, and shading those on the back trellis, must be taken away, leaving always one joint of the newly sprung shoot to continue the circulation of the sap, otherwise there is some danger of starting

the permanent buds for a considerable length down the vine. These observations, however, of stopping the young shoots thus soon apply strictly to plants which are forced early; but where there are two or three vineries, and the forcing did not commence until the middle of March or the 1st of April, the shoots should be allowed to grow three or four weeks longer, lest any of the young buds should start into wood that is to produce the crop the following year.

The practical treatment of the plants forced in vineries thus late differs nothing from what has been already set forth, except they will require a slight degree of fire heat in the month of September, in order to forward the maturation of the shoots.—(*See OCTOBER.*)

The Peach-House.

The earlier kinds of peach and nectarines in this compartment will now be ripe, and to have them in as full perfection as possible, the house must be kept perfectly free from damp until the fruit is wholly taken down.

It is not a common practice among gardeners to pull peaches and nectarines cultivated in the peach-house, but are for the most part allowed to drop off of their own accord, and, to prevent them from being as little injured as possible, some have the

surface of the ground and that of the flues covered with moss, while others prefer hanging up nets, mats, &c. with a view to catch the fruit. This is not a good method of preparing peaches and nectarines, either for the table or for sending away, because they are of a soft and flabby substance, and if allowed to drop even a very small distance, injures the fruit to such a degree, that I have not unfrequently seen the greater part of it rendered useless. In gathering the fruit with the hand, therefore, great care should be taken not to crush it by any means, but put the fingers underneath it, and, if perfectly ripe, will separate itself from the plant with a very gentle shake. Fruit that is not intended to be used immediately, or such as is to be packed and sent away, should not be allowed to get thus ripe, but must be pulled a day or two previous, which causes the fruit to keep much better, and prevents it from getting damaged from the working of the carriage.

The only way by which to judge fruit of this kind, not altogether ripe, is by feeling it, which, if fit to be taken down, will be somewhat soft, full swelled, and of a brownish colour, next to the sun. As soon as the fruit is wholly taken down from the plants, they must be duly watered at root and over the leaves, as noticed in the preceding months, bearing in mind that the quantity of water which is necessary to support the plants at

this period would be superfluous, or rather injurious to their welfare, when the season is further advanced, and when the growth of the plants does not require it. The only thing further to be attended to, while the plants are in a growing state, is pruning and the admission of air, which, as they differ nothing from what has been frequently taken notice of in the foregoing months, supersedes the necessity of further observations.

THE PINERY.

I refer the reader to last month for full directions for the management of the plants previous to the fruits being ripe. Pine apples that are allowed to remain too long on the plants after being ripe are neither so pleasing to the eye nor so agreeable to the palate, as when they are taken from the plants when they are of a greenish-yellow colour—I mean fruit of this kind, that is permitted to change itself into a whitish-yellow, will never possess that degree of richness and flavour as fruit that is cut for some time before.

With respect to the propagation of pines, (now as the fruit is supposed to be ripe,) some have affirmed that the crowns which are produced on the tops of the fruit are preferable to suckers that rise immediately from between the leaves, and consider the crowns as less liable to start into

fruit too soon. This may, in some measure, be true ; but, so far as I have myself been concerned in pine growing, or have seen it practised by others, I always observed the suckers to become the strongest plants ; and, when properly managed, seldom started prematurely into fruit. The crowns should be twisted from the fruit from time to time as the fruit is used, cut horizontally at bottom, and placed on the bed for a day or so, to harden and dry their ends ; after which, they should be stuck into the tan or leaves till all the crowns are taken from the fruit, that the whole may be potted off at once. As soon as the suckers begin to get brown at the bottom, and separate themselves from the mother plant, it is fit time they were taken away, because suckers that are allowed to remain much longer than this, and receiving only a partial benefit from the parent stem, endangers them of starting prematurely into fruit. They should also be cut horizontally at bottom, and if it be wished to have both these and the crowns potted off at once, should be stuck into the bed until all the suckers are ripe and are ready to be taken off. Should any of the young plants be infested with the bug or scale, they ought to be destroyed previous to the plants being potted, otherwise the destruction of them, when the plants are grown to a greater size, will be less obvious, and attended with more trouble than if this was done at the present time.

The most common, and indeed the best method of destroying these vermin in plants which are thus young, (recommended by Mr. Baldwin,) is by steaming them with horse dung, which, if not old and exhausted, will be found to answer the end fully better, and do less injury to the plants, than any thing which has hitherto been tried. Proceed thus :—Just at the time the crowns and suckers are all collected together, let the surface of the dunghill be taken off, and the hill itself levelled down to the breadth and length of a two light frame. Put the box on the top of the dung, and spread a few bunches of faggots within it, to prevent the heat of the dung from burning the plants. Let the sashes be put on immediately afterwards, and when it is observed the steam has become as great as it will be, they must be taken off again, and the young plants put into the frame with their heads turned downwards, that the steam may ascend more readily into their hearts. Shut down the sashes after this, and if it be observed the steam rise quickly, one hour will be sufficient to destroy any bug or scale that ever will be found to infest the pine.* Take the plants out of the frame after

* Mr. Alexander Muirhead, gardener at Invermay, who is well known for his excellence in pine growing, gives a very good receipt for the destruction of the scale and bug. After displacing all the insects he can see, he immerses the plants in a

they are thus steamed, and plunge them twice or thrice into soft clean water, of a mild temperature, perfectly cleans the plants of dust, and washes off the remains of the dead vermin from the angles of the leaves. The plants washed, give them a quick shake, and hang them up into the pine-stove with their leaves undermost, until they become perfectly dry, and are fit for being potted.

The kind of pots which are made use of for plants of this age are various; some recommend one shape, and some another; but if the plants be otherwise well grown, and the pots are of a size corresponding with the age of the plants, the form of them is of little consequence. In general cases, therefore, pots from three to four inches in diameter, and five inches deep, will be found to be a very good medium in which to strike crowns and suckers, observing to prefer those of a soft quality, and which are made perfectly clean inside. The pots ready, they must be drained to the depth of an inch or so, with small pieces of hard dry turf, and the remaining space filled with the pre-

tub of water, containing one pound of flower of sulphur to each garden potful. They remain covered with the water for 24 hours, after which he plunges them over head in clean water of a mild temperature, and hangs them up into the pine-stove with their heads downwards, and, as soon as they become perfectly dry, pots them off in the ordinary manner.

pared compost for crowns and suckers taken notice of at p. 5. This done, proceed to make ready the plants, which, to encourage to strike root as soon as possible, and that the earth may be pressed closely in around the stems for this purpose, a few of the bottom leaves must be taken away. The plants should be kept in the centre of the pots, planted two inches lower than the margin, and the surface of the mould made perfectly level to within half an inch of their rims. If any of the young plants that were first stuck into the bed have put forth roots, care must be taken not to break them off, but they should be planted entire, and to the same depth as the other. The potting finished, the pits or beds must be put in order, (*see JANUARY for the performance of this work,*) for the reception of the plants, which, as I formerly observed, require a bottom heat, that is, steady and mild, otherwise they will never be found to succeed well, nor produce fruit afterwards to defray the expense they have cost through the long course of cultivation.

Whatever way the plants are intended to be cultivated, the pots must be plunged quite up to their brims, three or four inches from each other, and perfectly level, because plants of this age that have no roots, and it is desirable to have them well established before winter, a mild growing heat is altogether indispensable. All things in order, the

top heat must be regulated morning and evening to stand 60 degrees ; and, in the course of the day, the plants must be shaded from the heat of the sun until they have fairly struck root, and are again beginning to vegetate. Water at the root must be given in proportion to the increasing power of vegetation which takes place in the plants, (*see the preceding month*,) and in giving it, care must be taken not to spill any water in their hearts, otherwise there is great danger of their damping off,—a circumstance so very hurtful to the feelings of an ingenious cultivator, that at no period can be too scrupulously guarded against.

Plants, cultivated in dung hot-beds, will require fully greater attention paid to them than those which are grown in a dry heat, because the steam arising from the dung is of a rank and corrupting nature, as I formerly observed, and if every opportunity is not embraced to draw it off in due time, the young plants will inevitably perish. A free circulation of air is the only means to get rid of this superfluous steam in beds of this kind ; and, indeed, if the plants are left for any length of time without air, now as they are striking root, and are unable to withstand the strength of the corrupting steam, the plants will at least be very much weakened by it, probably good for nothing. In giving air to plants which are cultivated in flued pits, care must be taken not to admit the air so freely while

the plants are shaded, and are striking root ; but as soon as it is presumed the roots are pushing freely, and the plants themselves are vegetating, the admission of it is the same as for nursing plants noticed in the preceding months.

AUGUST.

THE PINERY.

In dull seasons, and in cold situations, the fruit seldom arrives at maturity sooner than the middle of this month, in which case, the reader is necessarily referred to the preceding month, for the management of the plants previous to the fruits being ripe, and for the propagation of the crowns and suckers, as they are fully matured and are ready to be taken off. The practical treatment of the crowns and suckers, which were propagated last month, will have to be varied a little towards the end of this month, on account of the plants being stronger, and requiring more nourishment to sustain them properly. Water at the root will, therefore, have to be more freely given ; the plants fully exposed to the sun's rays, and fresh air admitted into the pits or beds in a greater or less quantity each day, and so as to keep down the

mercury in the thermometer to 60 or 65 degrees, if possible, brings on the growth of the plants gradually, and prevents them in a great measure from starting prematurely into fruit the following spring. These young plants must now be considered the nursing plants; and those which were the nursing plants before managed as succession; and the succession as fruiting plants. Supposing they are thus regulated, the practical treatment of the succession and fruiting plants at this period is precisely the same, and, to do them full justice, require to be syringed over head twice or thrice a week, duly watered at the root, when the plants stand in need of it, and fresh air given, and reduced by degrees, every day, to as great an extent as the state of the weather will allow, and so as to keep down the top temperature, from the effects of sunshine, to 65 or 70 degrees. This, with proper attention paid to the efficiency of the bottom heat, (I mean the renewing of the dung underneath the hurdle, when the plants are cultivated in this way,) is all that is necessary to be attended to until the beginning of next month, when the succession plants must be shifted into pots of a larger size, and the fruiting plants put into pots from twelve to fourteen inches in diameter, in which to grow and yield their fruit.

Of Forcing Peaches and Nectarines, trained on Flued Walls.

The forcing of peaches and nectarines in this way requires that a considerable degree of judgment, independent of instructions, be exercised; for, as I observed in MAY, (*which see*,) the danger resulting from the flues possessing an improper heat renders the most unremitting attention at this time necessary. In mild seasons, and in sheltered situations, fire heat is seldom requisite; but otherwise, the aid of the flues must be called in, both to forward the maturation of the fruit, as well as to invigorate and ripen the young shoots, which are intended for bearing shoots the following year. These young shoots, it is to be observed, must be trained in neatly to the wall as they grow, the better to admit the sun's rays, and a free circulation of air amongst the fruit.

The thinning of the leaves which overhang the fruit should also be practised to a certain extent; because fruit that is too much shaded from the light is seldom worth anything; nor does it swell off to such advantage as those which are more fully exposed to the sun. As to the length of time proper to be specified for the use of artificial heat, it is not easy to say, as the mildness of the autumn must determine this matter; but, at all events, it must

be continued so long as it is presumed that the young shoots are not sufficiently matured to endure the winter's frost. When the fruit is all taken down, particular attention must be paid to have the trees now and then well scourged with the engine, which not only refreshes them, and keeps them clean, but, what is of as much importance, extirpates the red spider, which, being fostered by the heat of the flues, is often very troublesome.

SEPTEMBER.

Of the Nursing and Succession Pits or Beds.

Presuming all things were regulated as noticed last month, the succession plants (which were before the nursing plants) will now be vegetating very fast, and must be shifted into pots of a larger size to allow the roots sufficient space to run in. The pots proper to be made use of at this shifting should at least be eight inches in diameter, and ten or eleven inches deep, made perfectly clean inside, and drained to the depth of two inches with small pieces of hard dry turf. It would, perhaps, be of little use were I at this period to take into consideration every little thing connected with the

potting of the plants and the making up of the pits or beds, as the reader, by turning to MAY, (p. 170,) will find full directions how this work ought to be performed, and for the management of the plants previous to the roots being again in active vegetation.

The crowns and suckers which were potted about the middle of last month or end of July will also be taking on a fine growth, which to encourage, without weakening the plants, renders the most unremitting attention at this time necessary. As the practical treatment of these, however, and succession plants, to do them full justice, ought ever to be the same, the observations which are given for the one will suffice for the other, as before observed.

The great thing to be kept in view, in conducting the practical treatment (particularly as the winter is fast approaching) this month, is to prevent the plants from growing too fast,—a circumstance so very much against their future welfare and fertility, that at no period can the ingenious cultivator pay too great attention to prevent. Thus circumstanced, the plants will require to be duly watered at the root, as the state of the mould in the pots, and the growth of the plants, make necessary ; and in giving air strict attention must be paid both to the rise and decline of heat in the pits or beds, for if the top temperature be allowed to rise to 90 or

95 degrees, (the practice of some indolent and inexperienced men,) the plants will get languid, and in a short time their lively green becomes pale, from which no future care can recover them, and on the approach of spring show fruit not less unprofitable than disgraceful. Sixty degrees, as I formerly observed, is a heat powerful enough for growing plants of this age, and so long as the top temperature stands at this, morning and evening, there is no necessity for fire heat, nor for applying fresh linings when the temperature is kept up by this means. But in place of the top heat being kept up by fire, when there may be occasion for it, or by linings of horse dung, externally applied to the two sides of the beds, the bottom as well as the top heat are maintained by the same cause, namely, by horse dung prepared and built in the manner I formerly observed, will require to be renewed from time to time as the state of the bottom and top heat stands in need of it. I need only add, that as soon as the roots of the succession plants are taken with the fresh mould, they should now and then be syringed over head, in the evening, using water for this purpose that is soft, and which has been brought to possess the same degree of temperature as that of the pits or beds before being used.

The Fruiting Plants.

The end of this month is generally considered among pine growers to be the fittest time for potting the fruiting plants, which, as it is desirable to have well established before winter, certainly this period ought to be preferred. The pots proper to be made use of at this shifting should at least be twelve inches in diameter, and fourteen inches deep, made perfectly clean inside, and drained to the depth of two and a half inches, with small pieces of hard dry turf, that is, procured from the sward of a pasture of good quality, and which has lain in grass for some years. The pots ready, there is no necessity for carrying the plants to the potting-house at this shifting, but may be done out of doors, as they are taken out of the pits or beds which they now occupy.

In preparing the plants previous to removing them out of the pits which they are now in, their leaves should be tied up with strands of fresh matting, lest any of them should get broken or bruised from handling them in time of potting, or getting injured on being replunged into the fruiting-house. This done, turn the plants carefully out of their pots, loosen the surface of the balls a little, that the fresh compost, spoken of at p. 6, may unite fully better with the old mould, and if any of

the roots have become matted, single them out. Place the plants in the centre of the pots, the top surface of the balls an inch and an half lower than the margin, and twist off a few of the bottom leaves, that the young roots may strike more readily around the bottom of the stem. Fill in the prepared compost immediately afterwards, and be careful that no vacancies are left between the balls and the sides of the pots, using a small piece of wood for this purpose to work in the mould, and keep the surface perfectly level to within an inch of the brims of the pots.

The potting finished, the bark or leaves in the pit of the fruiting-house must be turned up from the bottom, and as much fresh materials (duly fermented) added in time of trenching as will maintain a sufficient degree of bottom heat till about the first or middle of November. The pots must be plunged quite up to their brims, keeping them level, and kept at such a distance from each other, that when the ties are removed the plants may have sufficient space to grow without being crowded. If they were previously grown by fire heat, the admission of air, temperature of the house, watering at root and over the leaves, differ nothing from the management of succession plants, or for crowns and suckers, spoken of in the preceding page; but, in place of the top temperature being formerly kept up by fire, the plants were grown by dung heat,

much more attention must be paid to their cultivation, because plants which have been accustomed to grow in a moist atmosphere are ever inclined to start prematurely into fruit when removed into a heat that is of a dry nature. The great thing to be kept in view, therefore, in cultivating plants which have been thus grown, is to keep the house always in a moist state, which naturalizes the plants, as it were, to the change, and prevents them from becoming fruitful plants sooner than it is wished. Pouring water on the flues, paths, &c. when the fires are brisk, is the only means by which the house can be kept tolerably moist ; and, as soon as the nights become so cold that the plants cannot be syringed over head with propriety, the use of water in this way, morning and evening, not only secures the plants from starting into fruit too soon, but gives to them that degree of nourishment which they have hitherto been accustomed to receive. The practical treatment of them in other respects is no-ways peculiar, and may be conducted as already noticed for Succession Plants grown by Fire Heat.

OCTOBER.

THE PINERY.

Of the Fruiting, Nursing, and Succession Plants.

There is scarcely any thing connected with the practical treatment of these plants at this period that may be regarded as conducive to their welfare, when viewed apart from the observations frequently spoken of in the preceding months ; yet, that nothing may be omitted that may be of service to the cultivator, I shall resume each particular there taken into consideration in as concise a way as possible :—To avoid sudden transitions from heat to cold constitutes the grand object particularly to be attended to in the cultivation of pines, and, so long as it is wished their future welfare and fertility be secured, the very greatest attention, in this respect, will be requisite.

Whatever way the plants are cultivated, therefore, the top heat must still be regulated to stand 60 degrees, morning and evening ; and, in giving air now, as the weather is getting chill, the mercury in the thermometer must neither be allowed to rise above 70 degrees by sun heat, nor fall below 60 degrees from the effects of cold, otherwise the plants, young or old, never will be found to suc-

ceed well, nor compensate the trouble and expense they have hitherto cost. Water at the root is also a matter of very considerable utility; and, indeed, if the plants are ever so well cultivated in other respects, and neglected in this, they very soon become stunted, from which no future care can recover them, and, on the approach of spring, either start into fruit too soon, or, what is fully worse, die altogether. A medium betwixt damp and drought, as formerly observed, is the best general rule which can be given for determining when the plants stand in need of water at the root; and so long as the mould in the pots is thus moist, any more water will do the plants more injury than good.

Pouring water on the flues, paths, &c. in compartments wrought by fire heat, is an excellent means for keeping the plants in good health; and now, as the season is getting cold, and the plants cannot be syringed over head with propriety, must be done every evening during winter when the fires are brisk—causes the steam to rise in a greater quantity, and does the plants more good than if done at any other period. Plants cultivated in dung hot-beds will require more attention paid to them than those that are grown by fire heat; but, as the reader will find full directions in JANUARY how the plants are managed in this way, supersedes the necessity of repeating at this period what would be of little consequence.

I need only further observe, that, as soon as the nights become so cold as that the top temperature cannot be kept up without having recourse to an extra degree of artificial heat for this purpose, it will be advisable to begin covering both the pits and beds, as formerly directed.—(See *JANUARY*.)

Of Pruning Established Plants in the Vinery.

If the young shoots directed to be left in February be fully matured—I mean the wood hard and the leaves dropped off—they should now be pruned without further delay, and exposed to the action of the weather, until the forcing commences the following spring. In pruning these plants three things ought particularly to be observed—viz. the strength of the shoots, the nature of the vines, and the number of years in which they have been planted. The strength of the shoots—because vines which have been ill treated, and have produced an overabundant crop last summer, will, undoubtedly, have weaker shoots than those which have been managed in a scientific and proper manner. The nature of the vines—because it is the nature of some vines to grow much more vigorously than others, and, of course, are able to bring more fruit forth to perfection than those which are delicate. The age of the vines—because vines which have been planted many years, and are well established, are calculated to produce double the fruit of those that

are only three or four years old. Supposing, in the first place, that the plants are in good health, well established, fully matured, and have been managed as directed in the preceding months ; that the knife is in good order, and the border, both in and outside the house, is in a condition fit to nourish the plants in producing an ordinary crop of fruit the following year.

In pruning the plants which are trained to wire running along beneath the rafters, regard must be had to those growing against the back trellis, (supposing the vinery is thus constructed ;) because vines growing in this situation, and are too much shaded by those in front, seldom produce fruit worth the cultivation ; at least the bunches never can be made to possess that degree of richness and flavour as those which are more fully exposed to the sun's rays. To prune with judgment, under these circumstances, and to have the fruit on the back trellis* equally good with the bunches in front, a distance of six or seven feet should be left between the top of the vines in front and the top of the house. I do not mean, however, that all the shoots in front are to be left thus high up the roof, (supposing the house to be of an ordinary width ;) but must be shortened, less or more, according to their strength, observing, at the

* The early kinds of grapes succeed best in this situation, and, so long as it is wished that the vines should yield good crops, the late sorts never need be planted.

same time, the distinction which must be paid to pruning plants, which naturally grow more vigorously than others. Those shoots on which the fruit was produced the present year should be entirely cut away, unless the spur-bearing system be followed; for, if allowed to fruit along with the young shoots, they will inevitably bring on sterility in a very few years.

Plants trained to the back trellis may either be fruited on spurs or on the young wood, though, upon the whole, as a principle of fruiting, the vine thus situated, I imagine the former method ought to be preferred, because plants which are fruited on the young wood only, and are placed at such a distance from the glass, never produce shoots sufficiently strong and well ripened as to continue the fertility of the plants for many years. If fruited on spurs, rather than to run the plants out of bearing, or allow them to produce a few solitary small bunches here and there, not less unprofitable than disgraceful, one eye to each spur should only be allowed to remain, keeping in view, at the same time, to divest the plants of such shoots as have the least appearance of fruit, that, when the leaves are fully expanded the summer following, the fruit may receive a considerable share of light and of the sun's rays.

The pruning finished, the plants should be stripped of the loose bark, the sashes taken off the house,

the flues defended from snow or much rain, and the vines tied to the rafters outside, that they may be more fully exposed to the action of the weather.*

This is not a common practice of exposing vines to the severity of the weather during winter, but are for the most part shut up from it,—an error, in my opinion, very hurtful to the health of the plants, and should never be resorted to. It is true, vines that are not fully matured, (which only arises from bad management,) and it is wished that they should produce fruit the following year, should not be exposed, because plants of this kind are of a spongy and soft nature, and if not fully ripe, never will endure the winter's frost, but otherwise they always do, and break much stronger the spring following than those which are pent up under glass.

Young vines, growing in pots which were suspended to the young shoots taken notice of in MARCH, should now be cut down, pruned to within one or two eyes of the pot, and managed in every other respect as noticed in JANUARY, (p. 9,) for other young vines. I need only add, that the border outside the house, and that in front of the back trellis, including the path, should have a considerable

* Some recommend anointing the plants with sulphur, mixed with soap-suds, &c., with a view to destroy the eggs of the red spider; but I can safely affirm, that on plants of this kind, which are well managed, the red spider will never make its appearance.

quantity of rich manure dug into them, observing whilst doing so not to injure or disturb the roots.

Of Pruning Peaches and Nectarines growing under Glass.

As soon as the young shoots are fully ripe, and the leaves are dropped off, it will be proper to have the plants pruned, the sashes taken off the house, and if the border be old and exhausted, a small quantity of rich manure should now be dug into it, in order to strengthen the plants for producing a satisfactory crop of fruit the following year.

As the principle of pruning these plants is the same as pruning peach trees in general, (*see* p. 210,) a very few observations will suffice. First, then, select those shoots that are best placed, and which have the most promising appearance of fruit; but do not cut off the tops of any of them, as directed for plants of this kind growing out of doors, because the shoots of peaches and nectarines cultivated under glass are generally well matured, and do not require it. If any vacancies should occur from the cutting out of old or unfruitful branches, the cultivator must have a sufficient number of young shoots, reserved in summer, to fill up this deficiency; and in peach-houses, which are well managed, more than double the quantity of young shoots can easily be obtained.

With respect to the distances at which the young shoots should be kept from each other, it may be observed, that if the trees be in a healthy and vigorous state, four or five inches will be sufficient, if weak and delicate, five or six will be a very good medium. The covering of the flues is the only thing further to be attended to; and, indeed, if they are not kept perfectly dry during winter, seldom work well from the quantity of moisture they imbibe, and on the fires being applied, moulder down so fast as to give the flues a very unsightly appearance.

Of Pruning Peaches and Nectarines, trained on Flued Walls, or otherwise.

This month has generally been considered as the most proper period of the season at which to prune trees of this kind; which, as it respects the experienced gardener, may indeed be true, it being an easy matter with such to distinguish the fruit buds from the wood ones at any time; but with young gardeners, who have had but little practice, I would recommend it as safer to delay this work until the month of February at least, at which time the buds will have become sufficiently swelled to enable them to discover the one from the other, and to choose from among the latter the most convenient to suit their purpose. The only rule that

can be given by which to discern fruit buds from wood ones arises from the difference of their respective shapes, the former of which are of a round and swelling appearance—the latter are rather long and flat. As these trees require a much greater degree of skill in pruning them properly than fruit trees of any other kind, and, moreover, as almost all authors whom I have seen upon the subject have written of it in so confused and indistinct a manner, as to render it difficult in what way their remarks are to be understood or applied, I judge it necessary, to prevent misapprehension, to commence my observations on these trees almost immediately after being planted, continuing to take notice in what manner they should be treated as the trees advance in height, particularly for the first year or two after they begin to produce fruit; and, lastly, to offer a few remarks how they ought to be managed after they have filled the spaces allotted for them. They ought uniformly to be trained in the fan manner, and kept perfectly open in the centre, until the two side wings are extended to the distance required; embracing every opportunity that presents itself afterwards to have the centre filled as soon as possible. This is not a common practice of training peaches and nectarines, but for the most part they are allowed to grow to such a degree of irregularity and confusion, that at no future period can they ever be made to excite in the

mind of an ingenious cultivator such a degree of satisfaction as he could wish. The first thing necessary to be done after being planted is to head them down, which should be done just as low as to cause the original branches to throw out a sufficient number of laterals with which to fill the wall. In the summer following, when the shoots have grown to a considerable length, they should be laid into the wall; and if, when the tree was planted, it was composed of few original branches, a sufficient number of the lateral shoots produced by these original branches must be chosen for leaders, and these leaders must be laid into the wall at such a distance from each other, that when they arrive at their farthest destination, may be from two to three feet apart, allowing the height of the wall to be twelve feet. It frequently happens, however, that these original branches throw out a considerably greater number of laterals than is needed for leaders, which, in this case, must not be taken away, but laid into the wall, if there is sufficient space to admit them without being too much crowded. They will require no more to be done to them until February following, when these shoots laid in for leaders must be shortened, to make them throw out a sufficient quantity of young wood, both for the purpose of producing fruit afterwards, and furnishing the wall in those spaces lying immediately betwixt them. In shortening

the leaders the first time for this purpose, they may be cut at a much greater height than can be done with propriety any year afterwards; for, it is obvious that, as the tree advances in height, the spaces lying between the leaders will continue to increase, and will therefore require a greater quantity of young wood to fill them properly. This shortening, however, must be performed with great judgment; for, if the leaders are not cut over just at that particular place where young wood is necessary, it will deprive the tree of that regularity and beauty which these young shoots will have if these leaders are cut over at a proper height. This shortening of the leaders must be repeated every year, until they have reached the farthest extremity you intend the tree to grow. With respect to the young shoots lying between the leaders, it has been the opinion of some that they ought never to be shortened unless injured by frost, cankered by mildew, &c., or for the purpose of filling a vacancy, or extending the tree; but these opinions are not correct; for all these shoots ought to be shortened, less or more, according to their strength, not to fill a vacancy, (because, if the leaders have been cut over as above directed, no vacancies will occur,) but for the purpose of making these original shoots produce a sufficient quantity of other shoots on which the fruit is to be produced the following year. This heading down of the original young wood should

be performed, for the first time, exactly when the leaders are cut over, and should be repeated every succeeding year in the same manner, both before and after the tree has filled the spaces allotted for it, and indeed as long as the tree continues to grow.

In heading down these original young shoots, care must be taken to cut above an eye likely to produce a leading shoot, and, if possible, above one issuing either in front or on the back of the branch lying contiguous with the wall; and, besides, as the original shoots will commonly produce a greater number of other young shoots the summer following than is necessary, a sufficient number of such only of those as are conveniently situated should be allowed to remain, the rest should be entirely taken away.—(*See further directions on this subject in MAY.*)—As soon as the original shoots begin to get bare at the bottom, which will take place in a few years after being first cut over, no opportunity should be omitted to cut them out, and supply their places with young wood, either issuing from the shoot whose place is to be filled, or from the one lying immediately under it. When the tree has grown to a considerable size, and has nearly reached its farthest destination, particular attention must be paid to the central and lower parts of it, for, as the young shoots arising towards the extremities of the tree will na-

turally grow more vigorously than those issuing in any other part of it, it is obvious, that, to obtain a regular succession of bearing wood throughout the tree, this propensity must be checked, and the knife more freely exercised in those parts than towards the extremities.

These remarks equally apply to trees which have filled the spaces allotted for them, and, together with depriving the trees of old wood, as before directed, constitutes the grand object particularly to be attended to in future, while these trees continue to grow. I might here take notice, that it is the practice with some, the better to ensure a crop, to lay in supernumerary shoots besides the regular ones, and to consider these as temporary, and to remain only for one year. If this is done, these need not be shortened, but laid into the wall at full length, as it is not intended they should produce laterals, or form a permanent part of the tree. With respect to the distance at which the bearing shoots may be laid in from each other, it may be observed, that if the tree be in a healthy and vigorous state, it will require the shoots to be kept at the distance of four inches from each other, if weak and delicate, five or six will be a pretty good medium.

Of Pruning Established Plants in the Cherry-House.

The only rule which can be given for pruning these plants, whether cultivated in pots or tubs, or growing as standards in the border, is to keep them open in the centre, the better to admit the sun's rays, and a free circulation of air amongst the fruit the summer following. All shoots which cross each other should also be taken away, together with the breast wood, (if not removed in the summer pruning,) that not unfrequently rise among the spurs; leaving no shoot whatever, unless with a view for the extension and beauty of the tree, or for the purpose of filling vacancies occasioned by the cutting out of diseased wood. Those which are trained to wire running up the roof, and such as are growing against the back trellises, must be pruned at the same time; keeping in view, that if the border be old and exhausted, to have a moderate quantity of good rotten dung dug into it, which will cause the plants push fertile shoots the summer following, and greatly encourage the swelling of the fruit.

Of Pruning Figs.

Figs are sometimes pruned this month, and at other times it is referred until the latter end of

March or middle of April ; but as the young shoots are of a spongy and soft nature, and liable to be injured by frost, the month of April should certainly be preferred for pruning them. They are seldom planted out of doors with a view to produce ripe fruit ; but are for the most part used to embellish old ruins, cover summer-seats, or hide naked walls in exposed situations, for which, from the magnificent and luxurious foliage, they are admirably adapted. If, however, a well sheltered situation can be obtained, and it is presumed the plants will ripen their fruit with the assistance of a flued wall, the manner of pruning them is as follows :—They produce their fruit entirely on the young wood of one year's growth, and, therefore, in pruning them, the chief thing to be kept in view is to obtain a regular succession of the best placed of these young shoots in every part of the tree. Now, the only way to succeed in this is to manage the tree properly from the beginning ; for, if allowed to grow to too great a height without being seasonably shortened, nakedness at the bottom will be unavoidable. To prevent this, therefore, no opportunity should be omitted, as the tree advances in height, to deprive it of old wood, and supply the vacancies with young shoots, which, if well ripened, should be laid into the wall at full length, about the distance of ten or twelve inches from each other.

It may sometimes be impracticable to find a sufficient number of these young shoots to fill the wall at the regular distance, in which case as many of them must be headed down to cause them throw out a sufficient number of laterals for this purpose ; but if the wall can be conveniently filled without shortening the young shoots, it is better, as this cannot be done without depriving the tree of part of its fruit, and, besides, the young shoots proceeding from such can seldom or never be ripened. I might here observe, that figs which are in a healthy state throw out considerable numbers of suckers from the root, which, when they are planted merely for ornament, may be laid in to the wall, a profusion being, in this case, the chief thing that is wished for ; but, in trees that are intended to produce ripe fruit, these suckers should never be allowed to rise, nor will they stand in need of them, if the tree has been pruned all along as it ought to have been.

NOVEMBER.

THE PINERY.

Of the Nursing and Succession Plants.

If the practical treatment have been previously well managed, and the plants are all in a healthy

condition, the bottom heat is the first thing necessary to be attended to. About the middle of the month, or thereabouts, let the bark or leaves in the pits or beds be trenched to their full depth, adding as much fresh materials, (duly fermented,) in time of turning, as will raise the beds to their former height.—(*See JANUARY for the performance of this work.*)—The plants will not require shifting at this period, but a few of the decayed leaves at bottom may be taken away, and a little fresh mould, laid on the surface, causes the plants to push surface roots, which keep them more firm and steady in their pots. Plunge the pots to their brims, as before, and water occasionally, as the growth of the plants and the mould in the pots make necessary, observing that the greater care with which this work is performed, the plants will thrive the better, and become stronger than those which are watered in a careless manner. The right regulation of the temperature, steaming the plants, in compartments wrought by fire heat, and the admission of air, differ nothing from what has been already noticed in the preceding months; to which, therefore, I refer the reader.

The Fruiting Compartment.

The bark or leaves in this compartment will also require to be turned up from the bottom, and

a sufficient quantity of fresh materials, added in time of trenching, as will bring the bed to its former height, encourages the plants to grow much stronger than those placed at a greater distance from the glass. If the surface of the mould in the pots have become indurated, it will be advisable to stir it up, and apply a little fresh compost ; if the old has sunk too low, it causes the plants to put forth surface roots, very much to their future welfare and fertility. Replunge the pots to their brims, as before, and attend to the admission of air, watering at root, and steaming the house, as before observed. —(*See JANUARY.*)

DECEMBER.

On the Cultivation of Grapes in the Pine-Stove.

The cultivation of grapes in this way is generally attended with good success, and combines not only the advantage of obtaining very early and high-flavoured fruit, but supersedes the necessity of having recourse to the unnatural practice of forcing vineries sooner than it is wished. Plants cultivated in the pine-stove are generally planted outside the house, having a border made for the purpose, and are either introduced through holes made in the

parapet in front, or immediately underneath the sashes commonly used for the admission of air. They do very well planted in this situation, and, if well pruned and judiciously managed in other respects, there is every chance of the plants yielding satisfactory crops of fruit, and the culture of them will be attended with less trouble and expense than plants cultivated in a regular vinery.

Some gardeners prefer fruiting the plants on the young shoots of the preceding year's growth, while others reject this method, and fruit them on spurs only. The former method may be followed for the first three or four years after the plants are of an age fit to produce fruit, and the latter when the plants get stronger and more fully established. Young vines that are healthy will grow and yield abundant crops either on spurs or on the young wood above mentioned; but, when they get old, and have a greater space to occupy, and are deprived of the means which are used in regular vineries of bringing on vegetation by degrees, I always found the spur-bearing system to succeed best. It is not to be expected that vines growing in a pine-house will ever produce crops of fruit equal with plants cultivated in a vinery, because the nature of the pine and that of the vine is materially different; but to those growing in a house mainly constructed for their culture, allows the gardener every opportunity of carrying into effect that which

is deemed necessary to the welfare of the plants. The only way in which the plants should be trained, to prevent them from shading the pines, is to a single shoot up the rafters, which shoot, it is to be observed, is not intended to produce fruit, but is meant only as a passage to carry up the sap to the branches proceeding from it above the path, and such as are trained to the back wall or trellis, constructed for the purpose.

Some fruit the plants on one or more shoots immediately beneath the rafters; but this is a bad practice, as vines thus fruited must necessarily shade the pines considerably, and will do them more injury than perhaps the value of the fruit thus obtained would compensate. Supposing, in the first place, that the plants are to be fruited on spurs, and trained above the path formerly mentioned, they require to be pruned with a considerable degree of judgment, otherwise it will not be possible to continue the fertility of the plants for many years; two eyes on each spur for the strong and luxuriant growing kinds, and one only for those which are delicate, will be found to produce a sufficient quantity of fruit, even on the very small space the plants are allowed in this situation to occupy.

Young vines that are fruited on the young wood must also be pruned with great judgment, for if too many shoots are allowed to remain, the plants

will undoubtedly throw themselves out of bearing wood in a very few years. In heading down these young shoots, a material difference must be observed from the principle of pruning plants of this kind forced in a vinery, because being, as I formerly observed, deprived of the means that is taken to bring on vegetation by degrees, induces the sap to flow so rapidly towards the upper extremities of the shoots, that when they are left too long, a considerable number of the buds at bottom will not start into fruit, and, of course, may be regarded as a very great deficiency, both as it respects the future welfare and fertility of the plants, as well as the unsightly appearance it will give to them when pruned in this way. The number of buds proper to be left on these shoots must be determined according to the strength of the vines, which, if strong and vigorous, ten or twelve may be allowed to remain, but if the weak and delicate growing kinds, six or eight will be sufficient. Grafting or inarching the weaker sorts of vines on those which grow strong and vigorous, is also practised with good effect on such plants as are cultivated in the pine-stove. The former method ought to be performed (in the common way) when the plants are young, and early in the spring, a short while previous to the commencement of vegetation, and the latter about mid-summer, by applying a young shoot that is in a free growing state to a stock of

the preceding year's growth. They should be bound neatly together with strands of fresh matting, and if the work be done with that degree of judgment which is necessary, the one will be perfectly united with the other the same year.

When the pine-stove is adjoined to a vinery or peach-house, it is a common method to plant the vines therein, and introduce them into the pinery through holes made in the partition. They thrive very well planted in this situation, and are generally trained to a trellis formed of slight spars of wood running along the back wall, or to one of wire four or five inches clear of the upright slashes in front of the house. Before proceeding to prune the plants thus trained, the nature of the vines, their future usefulness, and the compartment in which they grow, should be previously well considered, as above observed. With respect to the future management of the plants, I need say nothing, as the reader, by turning to the preceding months, on the Cultivation of Grapes in the Vinery, will find full directions for watering at root, syringing over the leaves, divesting the plants of superfluities, and thinning the fruit on such as may stand in need of it. I need only add, that they must take the treatment of the pinery in other respects, and that it would be advisable to dig in a good quantity of rich manure into the border, and to have the stems of the plants that are growing

outside the house, wrapped with hay ropes every year before they begin to vegetate.

Of the Renovation of Vines.

Vines that have become unfruitful, either from old age or bad management, can be made to produce fruit equal if not superior to young vines, and in a shorter time. This is not what is generally termed hearsay: I have seen it practised to a very great extent, and would advise every practical gardener to try the experiment, rather than to have the plants yielding a few solitary small bunches here and there, not less unprofitable than disgraceful. Supposing, in the first place, that the plants have become unfruitful, either from the want of proper attention being paid to them, or from bearing over-abundant crops, (a circumstance which very generally occurs with inexperienced gardeners, and in such situations where the cultivator is often changed,) they ought to be renewed in the following manner:—

Previous to the commencement of vegetation, let a considerable quantity of very juicy cow dung be dug into the border, both in and outside the house, and as soon as the buds have become full swelled, and it is presumed that the sap is in rapid circulation, cut them down to the lowermost bud on each shoot, or to such a part as is most likely to push

freely. This done, proceed immediately to stop them from bleeding by cauterizing the wounds, and applying hot wax in the ordinary manner. The young shoots will push very strong after the plants are cut down in this way, and probably will yield a bunch or two of good fruit at the bottom of each shoot, and will not fail to give satisfaction the following year.

Vines that are old, and which produce very indifferent crops of fruit, may also be renewed, and with as good hopes of ultimate success as if young vines were planted in their place. Before any thing can be done to renovate vines of this age, a sufficient quantity of fresh loam, intermixed with the materials spoken of at p. 2, must be previously collected together, and thoroughly decomposed, as will be enough to supply the place of the old border, which must be taken out. The quantity of old mould (now in the border) proper to be disused must be left to the judgment of the gardener, though, in my opinion, rather than to have the plants pushing weak shoots afterwards, it were better to take it out entirely to within three or four feet each side the parapet.

The roots ought to be neatly trimmed with the knife, and to encourage them to strike more readily into the fresh mould, a considerable quantity of vegetable mould of decayed tree leaves should be laid betwixt the roots and the new border. The plants

should be cut down in the same way, and at the same time as those above mentioned, and treated in all respects as directed in JANUARY and APRIL for the newly planted vinery.

Of the Cultivation of Grapes in Pots or Tubs.

It is obvious that the cultivation of grapes in this way cannot be carried on to any considerable extent; but where a few early fruit is wished for, and it is desirable that the plants should be set on the table in their own natural and attractive form, the cultivation of them is as follows: The plants must be grown from cuttings shifted into pots, from a less to a larger size, trained to one shoot the first year, headed down to two eyes the following spring, and shifted into pots or tubs, fifteen or twenty inches in diameter, in which to grow and yield their fruit the third year. Yellow loam of very superior quality, intermixed with about one-third sheep's dung, and thoroughly decomposed, makes the best compost for plants cultivated in this way; but as soon as they begin to vegetate, two or three inches of good juicy cow dung should be laid on the surface of the mould, which causes the plants to push much stronger, and if renewed now and then through the course of the summer, will be found to have a good effect in swelling off the buds to advantage. On account of the roots being so very much con-

fined, it will not be possible to continue the fertility of the plants for many years, and, therefore, to have them to produce fruit worth the cultivation, young plants must be raised every third year at least. They may either be fruited on spurs, or on the young wood ; but as the latter method admits of a greater share of light and of the sun's rays, essentially necessary to the production of large and high-flavoured fruit, it ought to be preferred. With respect to the quantity of fruit proper for the plants to produce, it may be observed, that if they are strong and healthy, ten or twelve bunches may be allowed to remain ; but of the weak and delicate growing kinds six or eight will be sufficient. From the time the plants begin to vegetate, and until the fruit begins to ripen off, the mould in the pits must be kept tolerably moist, rather dry afterwards, that the flavour of the fruit may not be impaired. The syringe or engine must also be freely exercised during this period, both for the purpose of encouraging the berries to swell, and to prevent the breeding of the red spider, and other insects generally found to infest the plants.

If it be wished to have the fruit come in early, the plants must be removed into the conservatory or green-house about the 1st of December, and should be allowed to remain till the buds have become full swelled, the better to cause the plants agree with the temperature of the pinery or other

forcing-houses afterwards. This, with proper attention paid to the pruning of the plants, as soon as the wood is ripe, and the divesting them of superfluities during the growing season, is all that is necessary to be attended to while the plants are of an age fit to produce fruit.

Of Growing Cucumbers in Tubs or Boxes.

The cultivation of cucumbers in tubs or boxes is in general practice ; and, if the plants are placed in the pine-house, where they can receive the full advantage of the sun's rays, and a free circulation of air, there is every chance of them yielding satisfactory crops of fruit. Those who follow this method of forcing grow the young plants in the late cucumber or melon beds, out of doors, and, in order to have the fruit come on in succession, sow the seed at three different periods of the season—the first about the middle of August—the second the 1st of September—and the third about the end of this month. As soon as the plants become strong enough, and have each got two or three rough leaves, they must be shifted into the tubs or boxes in which to grow and yield their fruit, two or more of them in each tub or box, according to its size. The mould should be of fully better quality than that which is commonly used for growing cucumbers in pits or beds ; and, though the plants

do not fully agree with rich manure, yet, as their roots are so very much confined in this way of forcing, a moderate quantity of good rotten dung, intermixed with the soil, will be found to have a good effect in swelling off the fruit to advantage. From the time the plants are first taken into the pine-house, and until they are done bearing fruit, they must be freely watered at the root, and, in order to prevent the breeding of insects, and to encourage the fruit to swell more freely, should be frequently syringed over head, carefully pruned of all superfluous shoots, and all those leaves which overhang the fruit must be taken away, otherwise its flavour will be very much deteriorated.

The young gardener, being now apprized of every important particular, so far as I know, connected with the cultivation of the different kinds of exotic fruits which are generally esteemed, or which are commonly grown by the most skilful of the profession, may, according to the best of his judgment, select from the following variety what he conceives best calculated to give satisfaction to his employers.

Name
Sweet Water
Muscadine
Frontignac
Muscadine
Passé Mosque

Muscadine
Damascus
Frontignac
Prince
Morocco

Hamburg
Muscat of
Syrian
Muscat
Tokay

Hamburg
Muscadin
Hamburg
St. Peter's
Black Clust

Muscat of Ale
Muscatel
Frontignac
Syrina
Hamburg
Bain
Frontignac

Name
Mellin
Magdalene
Charlotte
Mignonne
Admirable
Purple
Ann
Newington
Leverue

GRAPES WITH ROUND WHITE BERRIES.

Name.	Flavour.	Size of the Berry.	Size of the Bunch.	Bearer.
White Sweet Water	Sweet and juicy	Large	Medium	Good bearer, and very early
Royal Muscadine	Rich vinous	Medium	Large	Good bearer in general
White Frontignac	Much admired	Medium	Medium	Good bearer in general
White Muscadine	Very fine	Medium	Medium	A very good bearer
White Passe Mosque	Much esteemed	Large	Medium	Good bearer in general

GRAPES WITH ROUND BLACK BERRIES.

Black Muscadine	Juicy and rich	Medium	Medium	Good bearer in general
Black Damascus	Very rich	Large	Medium	Good bearer in general
Black Frontignac	Very much esteemed	Medium	Medium	Good bearer in general
Black Prince	Esteemed by some	Large	Large	Good bearer—plant hardy
Black Morocco	Much esteemed	Small	Medium	Good bearer in general

GRAPES WITH LONG WHITE BERRIES.

White Hamburg	Esteemed by some	Large	Large	Very good bearer
White Muscat of Alexan.	High musky flavour	Large	Large	{ Good bearer—should be planted near the flues
White Syrian	Pulp hard & skin thick	Very large	Very large	Great bearer
White Muscat of Lunel	Very rich	Large	Medium	Very good bearer
White Tokay	Admired by some	Medium	Large	Good bearer in general

GRAPES WITH LONG BLACK BERRIES.

Black Hamburg	Rich vinous	Large	Very large	Very good bearer
Black Muscadine	Very fine	Large	Medium	Good bearer in general
Purple Hamburg	Very pleasant	Large	Large	Very good bearer
Black St. Peter's	Juicy	Large	Large	Good bearer in general
Large Black Cluster	Very harsh	Medium	Medium	Good bearer in general

GRAPES WITH RED BERRIES.

Red Muscat of Alexandria	High musky flavour	Large	Large	{ Good bearer, like the White Muscat of Alex.
Red Muscatel	Very pleasant	Large	Very large	Good bearer in general
Red Frontignac	Highly esteemed	Oval & la.	Medium	Good bearer in general
Red Smyrna	Much admired	Medium	Large	Good bearer in general
Red Hamburg	Much esteemed	Large	Large	Very good bearer
Red Raisin	Pulp hard	Large	Large	Good bearer in general
Grizzly Frontignac	Highly esteemed	Medium	Medium	Plant a good bearer

PEACHES.

Name.	Flavour.	Form	Size.	Bearer.
Chancellor	Pulp white and rich	Oval	Medium	Good bearer in general
Red Magdalene	Very rich	Round	Large	Good bearer
Royal Charlotte	Very fine	Round	Medium	Good bearer in general
Great Mignonne	High-flavoured	Round	Large	Good bearer in general
Early Admirable	Very rich vinous	Round	Large	Pretty good bearer
Early Purple	Rich and vinous	Round	Large	Good bearer
Early Ann	Esteemed by some	Round	Medium	Good bearer
Smith's Newington	Good flavour	Oval	Medium	Good bearer
Belle Chevreuse	Rich and sugary	Oblong	Medium	Good bearer

PEACHES—continued.

<i>Name.</i>	<i>Flavour.</i>	<i>Form.</i>	<i>Size.</i>	<i>Bearer.</i>
White Magdalene	High-flavoured	Round	Medium	Good bearer
Montauban	Very rich	Oval	Medium	Pretty good bearer
Bellegard	Very fine	Round	Very large	Good bearer in general
Red Nutmeg	Rich, musky	Round	Large	Good bearer, and early
Vanguard	Much esteemed	Oval	Large	Good bearer in general
Royal George	Very rich	Round	Large	Excellent bearer
Grimwood's ditto	Very fine	Round	Large	Good bearer
Royal Kensington	Much esteemed	Round	Large	Good bearer
Incomparable	Good fruit	Round	Large	Good bearer in general
Noblesse	Very rich	Round	Large	Very good bearer
Spring Grove	Highly esteemed	Round	Medium	Very good
Yellow Admirable	Very good	Rather round	Large	Good bearer
Catherine	Very pleasant	Round	Large	Good bearer, a clingstone
Monstrous Pavi	Much thought of	Round	Large	Good bearer

NECTARINES.

Elruge
Temple's
Duc de Tello
Roman
Newington
Murray
Scarlet
Fairchild's Early
Clermont
Brunion

PINES.

Old Queen, (most cultivated)
Ripley's New Queen
Welbeck Seedling
Brown Sugar-loaf
Prickly Striped Sugar-loaf
Havannah
Montserrat
King Pine
Black Antigua
Black Jamaica
New Providence

FIGS.

Black Genoa
Brown Ischia
White Ischia
Large White Genoa
Black Ischia
Malta Fig
Brown Italian
Murray
Green Ischia
Common Blue
Long Brown Naples Fig

MELONS.

Early Golden Cantaleupe
Orange Cantaleupe
Black Rock Cantaleupe
Silver Cantaleupe
Netted Cantaleupe
Carbuncled Rock
Lee's Rock Cantaleupe
Green Fleshed Cantaleupe
Scarlet Fleshed Cantaleupe
Lee's Romana, (large)
Small Portugal, (very early)
Mar's Rock
Water Melon
Muirhead's Large Rock
Scarlet Rock, (large)

CUCUMBERS.

Early Short Prickly
Cluster Cucumber
White Short Prickly
Large Green Prickly
Early Long Prickly
Early Short Prickly
White Turkey
Smith's Cucumber
Arklie's Early

STRAWBERRIES.

Alpine
Early Scarlet
Large Pine
Rose Berry, or Aberdeen Seedling

CHERRIES.

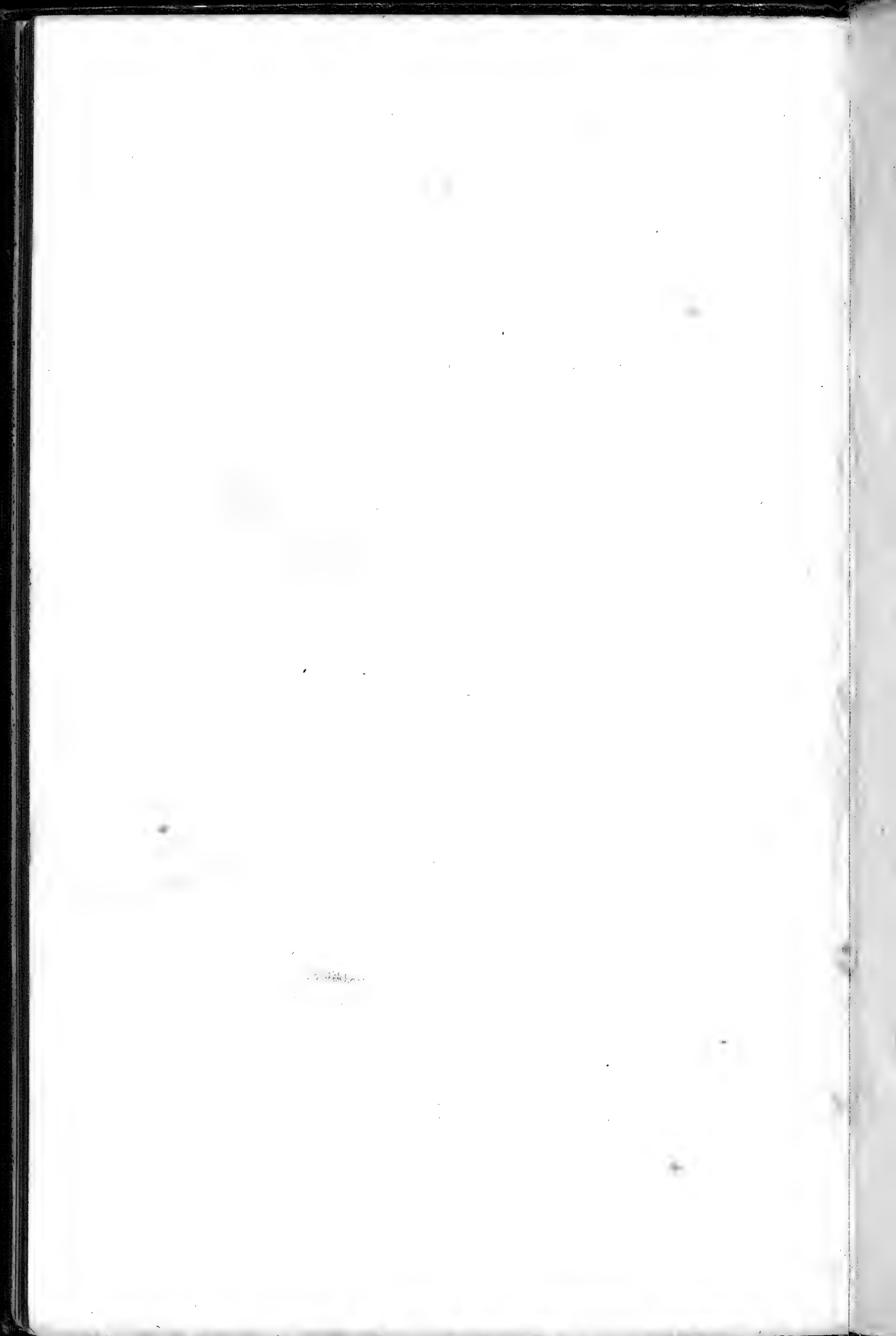
May-Duke, (best)
Morella
Black Heart

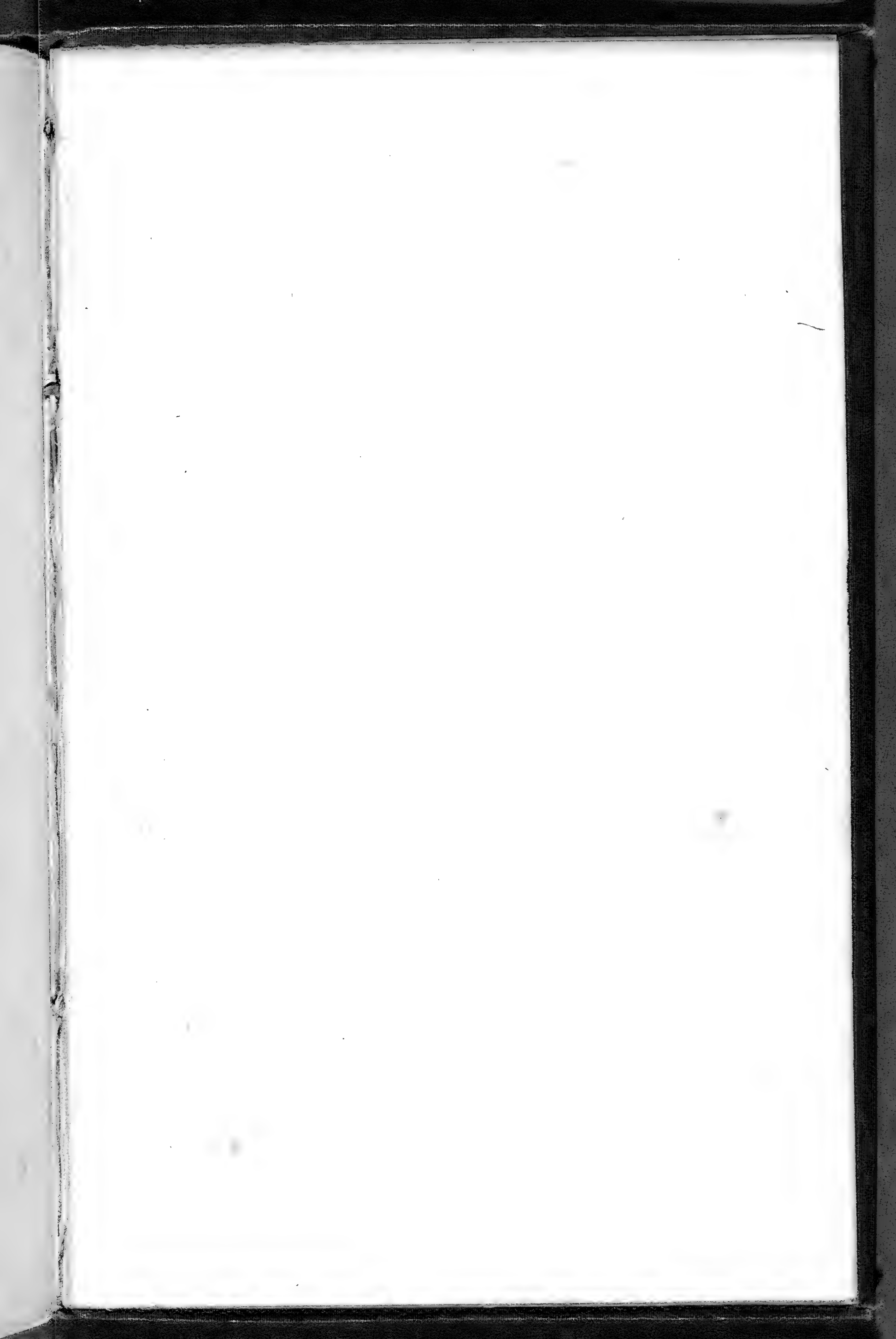
Beaver
d beaver
very good beaver
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d beaver, a
d beaver

FIGS
d Genoa
d Ischia
d Ischia
d White Genoa
d Ischia
d Fig
d Italian
d
d Ischia
d Blue
d Brown Naples Fig

FIGS
d
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HERRIES
d

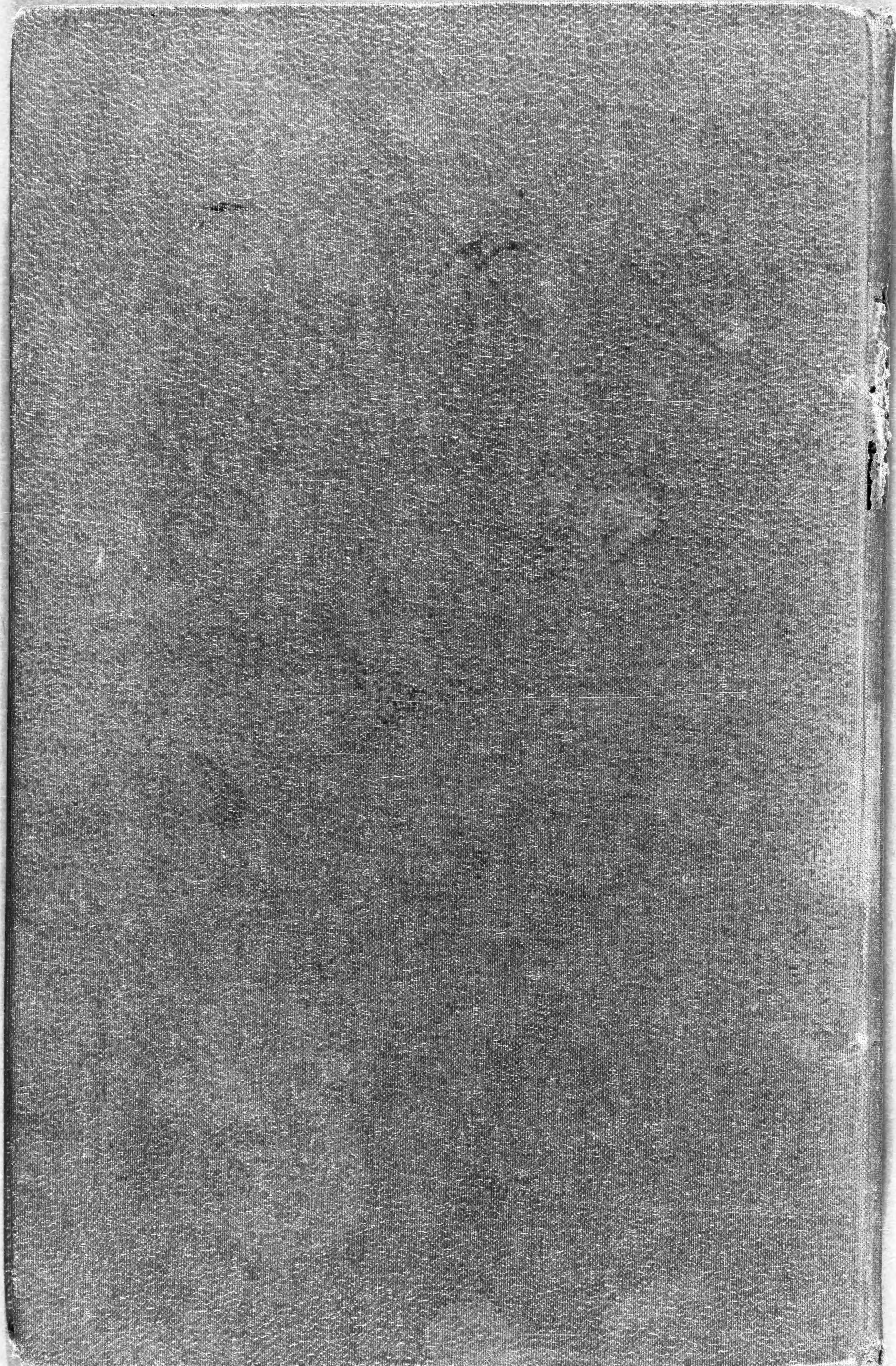




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SCOTCH
FORCING
GARDENER